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CREATION'S TESTIMONY TO ITS GOD

THE ACCORDANCE

OF

SCIENCE, PHILOSOPHY, AND REVELATION

A MANUAL OF THE EVIDENCES OF NATURAL AND REVEALED RELIGION, WITH
ESPECIAL REFERENCE TO THE PROGRESS OF SCIENCE, AND
ADVANCE OF KNOWLEDGE

BY THE

REV. THOMAS RAGG

ELEVENTH EDITION, REVISED AND ENLARGED

WITH ANALYTICAL INDICES, GLOSSARY, ETC. ETC.

LONDON

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1867

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DEDICATION.

TO THE REV. J. B. OWEN, M.A.,

MINISTER OF
ST JOHN'S CHAPEL, BEDFORD ROW, LONDON.

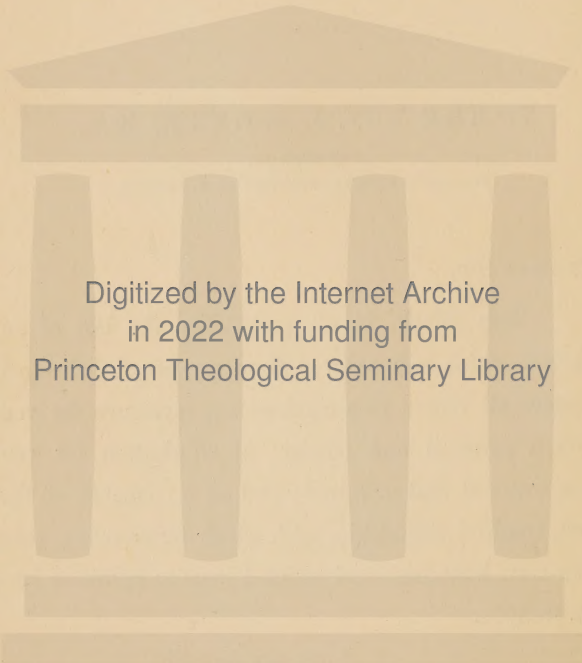
MY DEAR SIR,

This Work, in all probability the last of any magnitude which will proceed from my pen, I dedicate to you above all others, as a mark of my reverence for your character, personal and official; of admiration for your talents, original and acquired; and as a memento of that earnest, truthful friendship, with which for so many years I have been honoured, and which I hope to retain as long as life endures.

I am, my dear Sir,

Yours sincerely

THOMAS RAGG.



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PREFACE

TO THE ELEVENTH EDITION.

IF the tenth edition of this work had been published a few months subsequently to the time when it *was* issued, it is probable that the arrangement might have been somewhat altered to meet the theories put forth in Sir Charles Lyell's "Antiquity of Man." Indeed, the Author regretted, when that book appeared, that so large an edition had been previously printed, in which no reply to it could be given. The interval which has since occurred has shown the benefit of patient waiting: Sir Charles's theories have, one after another, come to be regarded as fancies, and the controversy is in a very similar position to that which it occupied before his book appeared. On mature consideration the author sees no reason for altering the text of his "Testimony," in which he has not a single sentence to withdraw; but has added brief chapters, in the form of Appendices, on "Man's Antiquity and Origin," and the more interesting and important subject of "Spectral Analysis."

Lawley, near Wellington, Salop,
September, 1867.

ERRATA.

The following few errors in the notes, &c., escaped notice while the work was passing through the press :—

Page 309, foot-note, 6th line from bottom, *for* Mosaic *read* Mesozoic.

Page 371, foot-note, 2nd line from bottom, *for* οργεγ *read* οργή.

In Glossary, article Chemical Elements, 4th line from bottom, *for* which word means *read* which truly is.

ANALYTICAL CONTENTS.

INTRODUCTION.

	PAGE
Present state of the Controversy—The Deficiencies and Requirements of the Age in reference to it—The Spirit in which it should be conducted—Anticipation of its final close	ix

PART I.—NATURAL RELIGION.

CHAPTER I.

Some general Principles laid down, and the whole Course of the Argument indicated—The Being of a God demonstrated by the existence of the Material Universe—The Relation borne by the Material Universe to the Space or Immensity in which it exists, similar to, and capable of illustrating, that borne by Duration to Eternity in which it exists—Difference between Eternal and Immortal—Proof that though the Material Universe may be Immortal, it cannot be Eternal, since it must have begun to exist, and, therefore, have been Caused or Created—The necessary existence of a First Cause, or Creator, deducible from these Propositions, and also from the nature of Eternity and Space	1
--	---

CHAPTER II.

The Being of a God demonstrated by the existence of the Principle of Life, or Inherent Volition—Life not essential to Matter; but an Accompaniment or Accident of it: a Gift bestowed by Self-existent Life—Spontaneous or Uncaused Finite Existence impossible—Spontaneous or Uncaused Infinite Existence not only possible, but necessary, in order to have originated Finite Existence—The Necessary Existence, and the Eternal Existence, of Finite or Creature Life, equally impossible with its Uncaused Existence; and the consequent Necessity, under any aspect, of an Independent Creator, to have called it into being	14
---	----

CHAPTER III.

The Power and Wisdom of God displayed in the Construction of Material things—The Vastness of Creation—Revelations of Modern Astronomy as to the System of the Universe—The unmistakable Evidences it gives of Divine Power and Wisdom	29
---	----

CHAPTER IV.

A closer view of that portion of the Universe which Man's eye can search, and his intellectual powers investigate—The Goodness, as well as the Power and Wisdom, of God exhibited in the Chemical Constitution of the Earth and its Atmosphere, and of Animal and Vegetable Tissues; and also in the general distribution of the different Elementary Substances ..	48
---	----

CHAPTER V.

PAGE

The Power, Wisdom, and Goodness of God, as exhibited in Organic Nature— Cell Life—Vegetable Physiology—Antecedent probabilities respecting the Nature, &c., of Vegetable Productions, provided they were the Creation of a Being all-powerful, wise, and good :—These probabilities more than realized in the actual existence of things as they are—Conclusion	65
---	----

CHAPTER VI.

Organic Nature, as exemplifying the Power, Wisdom, and Goodness of Deity, continued—A glance at the various orders of the Animal Creation : their adaptation to their different spheres of being—Microscopic Animals : their wonderful construction and use in the Animal Economy—Some general Examples from higher orders of creatures—The Mechanical Construction of the Body—The Dental apparatus—The regulation of Fluids—In- voluntary Muscular Action—Prospective Contrivances—Conclusion	83
---	----

CHAPTER VII.

Mental Phenomena ; or, Instinct and Reason, as manifested in inferior crea- tures, and in man ; with some of our Impulses, Passions, and Intel- lectual Faculties, as exhibiting the Wisdom, Power, and Goodness of God	100
---	-----

CHAPTER VIII.

Difficulties raised by Atheists, regarding the Wisdom and Goodness of God, met and obviated—Consideration of the principal views which have been promulgated to show that Material things furnish no evidence of Divine Wisdom and Goodness ; or that a belief in Creation is not necessary, in order to account for what is now existing—Chance—Necessity—Nature —Development	117
---	-----

CHAPTER IX.

The same subject continued—Development—Law	131
--	-----

CHAPTER X.

The same subject continued—"Induction"—"Natural Selection"	150
--	-----

CHAPTER XI.

More direct Objections and Difficulties regarding the Divine Wisdom and Goodness—The existence of Natural and Moral Evil—Consideration of the principal Theories offered to account for it, classed under the heads of Zoro- astrian and Ptolemaic—Their fallacy—The Epicurean class of Objections analyzed, and shown to be inapplicable—Proposal of a better Theory	167
---	-----

CHAPTER XII.

Summary.—Atheism, Christian Buddhism, Pantheism, and true Theism— The latter only consistent with the Teachings of Nature, and the Instincts of the human Soul	183
--	-----

PART II.—REVEALED RELIGION.

CHAPTER XIII.

PAGE

Revelation considered—Introduction—Revelation the only sufficient mode of attaining to a knowledge of the Deity—Revelation POSSIBLE, or perfectly consistent with God's Existence and Attributes, Creation itself being a Manifestation of Him, a Revelation that *He is*—Revelation *a priori* PROBABLE, from the darkness of the Human Mind, and the Uncertainties and Perplexities in which Man is involved, with Reason and Nature only for his guide—Revelation morally NECESSARY, in order to the Consistency and Perfection of God's operations, as an answer to certain Instincts implanted in the Human Mind—And if Man's Soul be Immortal, and he be a responsible creature destined to another state of existence, a Revelation additional to Creation (one of God's Nature and His Will) to be naturally expected from the Divine Wisdom and Goodness .. 211

CHAPTER XIV.

The Incorporeity of the Soul demonstrated, and its Immortality asserted—A Future State of Existence deducible from the facts of the present one ; and, therefore, every ground in force for believing that such a Revelation, as that suggested in the preceding Chapter, would be made .. 221

CHAPTER XV.

The Christian Revelation ; its consistency with what Nature and Reason teach concerning the Deity—God's Eternity, Immensity, and Immutability—The Finitude of the Universe—The commencement of Duration, &c.—And the Divine Attributes of Infinite Power, Wisdom, and Goodness—The other Cardinal Doctrines of Revelation not at all discordant with Reason and Nature 242

CHAPTER XVI.

The Power, Wisdom, and Goodness of God, displayed in the continued succession of Evidences to the Truth of His Revelation—in Miracles—in Prophecies, and their fulfilment—and in the numerous Modern Discoveries in Egypt, Nineveh, Arabia, &c., corroborative of the Truth of early Scripture History 255

CHAPTER XVII.

The Power, Wisdom, and Goodness of God, as exhibited in the System of Religion which forms the substance of Revelation, and removes the Moral Difficulties of the world, and also in the premonitions of Philosophy, which exhibit the congruity of the Human Mind thereto—The Tri-Unity of Deity—The Christhood, or Headship, of the Material Creation—Man's Depravity and Restoration to Holiness and God—The work of

	PAGE
Redemption the greatest possible display of Divine Wisdom and Goodness ; which are further manifested in the means instituted for rendering that work effectual	272

CHAPTER XVIII.

"Scientific" Difficulties and Objections concerning the Facts of Revelation met and obviated—Analogy between the Written and the Acted Revela- tion—God's Word and Works—Consideration of the Objection "that the Mosaic History of the Creation is incompatible with the known Facts of Science"	283
---	-----

CHAPTER XIX.

Obviation of "Scientific" Difficulties and Objections continued—The Hu- man Era	303
--	-----

CHAPTER XX.

Obviation of "Scientific" Difficulties and Objections continued—Consider- ation of the Objection that the production of the whole Human Race by one Primeval Pair, and its more modern unity in the family of Noah, cannot be made consistent with the known Varieties of our Species ..	316
---	-----

CHAPTER XXI.

Obviation of "Scientific" Difficulties concluded—The reign of Death prior to the Adamic Creation—The Mosaic account of the Noachian Deluge consistent with all we really know—The Anthropomorphic Representa- tions of Deity, constantly occurring in the Holy Scriptures, perfectly compatible with correct ideas of God's Infinitude	330
--	-----

CHAPTER XXII.

Difficulties raised by "Spiritualists," "Rationalists," and "Religious Pro- gressists," met and obviated—Scripture History neither Myth nor Allegory—Its Miracles not to be accounted for by Mesmerism, nor its Prophecies by Clairvoyance	346
---	-----

CHAPTER XXIII.

Objections brought against the great <i>Doctrines</i> of Revelation met and ob- viated—Mediation and Expiation—Verbal and Book Revelation—The Origin and Extinction of Evil	366
---	-----

CHAPTER XXIV.

Doctrinal Difficulties concluded—Faith. Results—Adaptation of Chris- tianity to Man and Man's World—Concluding Hymn	376
--	-----

APPENDIX A.—Spectral Analysis and the Nebular Theory ..	387
————— B.—Man's Antiquity and Origin	391

INTRODUCTION.

PRESENT STATE OF THE CONTROVERSY.—THE DEFICIENCIES AND REQUIREMENTS OF THE AGE IN REFERENCE TO IT.—THE SPIRIT IN WHICH IT SHOULD BE CONDUCTED.—ANTICIPATION OF ITS FINAL CLOSE.

THEOLOGICAL Treatises are numerous. Works on the evidences of Christianity abound. Each age has produced its champions for the truth, whose mighty minds have added to the voluminous resources of the past. Yet Scepticism is not slain, nor even dying. Realizing the fable of the ancient Hydra, it puts forth new heads as rapidly as the old ones are severed from its body: and seems to possess an indestructibility which testifies that conviction of the intellect alone is not sufficient—that the region of its vitality is the heart.

There is little of novelty in the Scepticism of our own age. The cavils and arguments of objectors have certainly assumed new shapes. Yet, the replies which were called forth by the writings of abler and more learned objectors in a former age, might, with a little adaptation, be made to answer *nearly* all of them. Atheism, Pantheism, Rationalism, and Anti-Supernaturalism,—which embrace all the phases of *disbelief*,—have been refuted, time after time, by men of gigantic intellect, who have passed away from this world, but who, being dead, yet speak. From one quarter only have the modern professors of these “isms” brought forward any novelty which has given them an advantage, however short-lived. In that quarter they have been always on the alert, showing an alacrity which Christians would do well to imitate. Every new discovery in Science, every fresh utterance of the voice of Nature, has been by them misinterpreted, and made to *appear* discordant with that Book which professes to be a Revelation from on high.

The *Secularist* in England, and the *Positivist* on the other side of the British Channel—who may be said to represent the most modern forms of Infidelity—both declare that Science is the proper study of man; and both profess to found their Scepticism upon the results of Scientific researches. To leave, then, to *their* interpretation the first Revelation of Deity—the physical Universe in which we dwell—is a sure way of making it *appear* to disagree with the second, the *moral* Revelation of His mind and will, the truth of which *they* call in question.

Under these circumstances, it is to be regretted that a due proportion of the Course at our Collegiate Establishments, especially those connected with the National Church, is not devoted, by Students destined to be Religious Teachers, to the study of the physical Sciences, which have, during the past half-century, made such rapid advances. They come to their several spheres of labour too little acquainted with the facts which the Book of Nature—God's elder Revelation—has made known. To meet the requirements of the age, they have a new study to commence; and that, not in the quiet of seclusion, but in the midst of conflicting engagements and constant demands upon their time—a study for which they have been well *prepared* by their previous mental training, but which too often entails a sacrifice of *comfort, rest, and health*. What marvel, then, if in many instances the misinterpretations of Nature's utterances are left uncontradicted!—that when the Secularist brings in a bill of divorcement for the severance of the Universe from its Creator, the charges sometimes remain unanswered! What marvel if the Infidel's suggested doubts leave disquiet in the minds of many who long for a satisfactory explanation, but find it not!

Yet *elaborate Treatises* on the bearings upon Natural and Revealed Religion of any new facts which advancing Science, or untiring labour, may have brought to light, do not appear to be the *chief* requirement of the age. They may add their quota to those vast stores of information and argument which are already treasured up; but will be found of less use to the multitude than to the learned: and it is not among the learned that Infidelity is *now* making way. Railroads, electric telegraphs, the rapid advance of discovery, and restless competition, have

communicated to the people—the throbbing heart of the nation—somewhat of their own velocity; and he who would speak to *them*, and gain their attention, must speak briefly, and to the purpose. Time is their chief capital, their stock-in-trade; and if they want information, they ask rather for a synopsis than for an additional chapter to the existing Cyclopædia, which is already beyond the reach of their time and means.

There is another class of persons, also, for whom the particular requirement of the age appears to be the same; I mean those who by their connections or occupations are continually led into temptation to disbelief. The weapons with which they are usually assailed are not philosophic or powerful arguments, but suggestions of doubts, inuendoes, and sneers. They are frequently told that Science will soon drive Religion out of the world; that the facts disclosed by its rapidly unfolding revelations are incompatible with the dogmas of Theology. And yet it often happens that the individuals who take upon themselves to deliver such a confident judgment, possess only a very superficial acquaintance with either the one or the other! For this class, too, it is not so much elaborate Treatises that are needed, as a combined summary of facts, so placed as to be made to tell with resistless force—a Manual which will show in the clearest light the complete harmony between Science and Scripture. They cannot read a volume to dispel a single class of suggested doubts. They cannot go through a long course of argument to obtain an answer to a sneer. But give them clear evidence in a brief space—give them, especially, a telling arrangement of tangible, pertinent, and indisputable FACTS—and their unburthened hearts will bound with gratitude and joy.

Nor does the requirement appear to be a different one for those *most* interested in the Controversy—Sceptics, and persons who have a mental tendency to Scepticism. There is an indisposition among them—whether the result of indolence or prejudice—to read and examine diligently the traces of His existence whose footprints are impressed so indelibly upon the Universe He has made. They rest upon the opinions they have received, because it is much easier to indulge in dreamy reverie than steadily to exert the faculties of reason. They cleave to them because time, inclination, or both, perhaps, may be want-

ing in sufficient abundance to enable them to go through a refutation whose details require many works of many volumes each, and even then are incomplete. With little difficulty, they might be persuaded to undertake the perusal of a single book; but that is generally calculated to satisfy them upon some one point only: whilst the grounds of their disbelief are *many*. If they enter upon a second or third volume, it is felt to be tiresome; and the intellect refuses to accord with that from which the heart and the taste recoil.

To place before minds so constituted another elaborate Treatise, similar to many which in past ages have done honour to our name and nation, would only be like heaping Alps on Apennines, when the hills before them were already insurmountable. Over them they cannot pass; but yet, perhaps, might be brought by a nearer and less laborious route to see and to acknowledge truth. The requirement of the age, then, even for these, appears to be a Manual in which the weightiest evidence may be presented in the strongest light, and that in the fewest words consistent with force and clearness. Men who would not read, and could not understand if they did read, the great works of our mightiest thinkers, may still, in all probability, have the evidences of our faith presented to them in a comprehensible and acceptable form. It is by a thirst after knowledge that multitudes of them are usually led astray: and a gratification of that thirst is, at least, one of the likeliest methods of leading them back to the Fountain of true knowledge and wisdom. By such means, their interest may be excited; and they will follow an argument which conveys information they are desirous of obtaining. They will read a Manual which *intelligibly* sets forth all the new facts advancing Science and patient research have made available; and thus, if in no other way, may be led to see the intimate union which subsists between true Science and Religion.

The production of a work which on these accounts appeared to him to be *required*, has been the object of the Author in the present Volume. He has endeavoured to render it interesting as well as instructive—to impart secular knowledge, as well as draw inferences from it—to give a Manual of the physical Sciences, as well as the gathered results of their

positive teaching. Passing through the universe of matter and of mind, he has sought, while gathering out its first-fruits as an offering to the Deity, to inquire into the nature of that which is felt and seen—and *thus* exhibit the accordance between Science, Philosophy, and Religion.

Another question, however, arises: "In what spirit should the Controversy be conducted?" It must in honesty be confessed that the Disbeliever in Divine Revelation has not always been met in a manner which becomes the followers of HIM who, while He sharply rebuked the Hypocrite and the Formalist, showed His compassion for the unhappy wanderer from truth by a reproof of tears.* Christians too often look upon Sceptics with more repugnance than sorrow—with more contempt than pity. Trained up in a belief of, and reverence for, a Supreme Ruler of all things, they look upon the individual who denies His existence, as a monster in creation—a being outside of humanity. Yet there are many who, with little idea of its worth, "wish they had faith," while they esteem it a delusion. The writer can remember the time when, seeking for happiness, and unable to find it, he has envied those whom he looked upon as *poor ignorant Christians*, as he heard them joyfully singing the praises of their Redeemer. But if, at that time, he had been met with nothing but violent denunciations, for a disbelief which he felt to be a miserable yet inevitable inheritance, it would have been little calculated to lead him to seek for happiness in a God of Love. Doubts are not always the mere excuses of one too idle or too heedless to examine; but are sometimes the evidence of earnest and diligent examination, commonly resulting in belief, which (far better than a mere inheritance) takes possession of the understanding and the heart. The mind is not to be cut and squared like stone from a quarry. Attempts to induce conviction by fire and sword have often been made, but as often failed. Persecution may generate Hypocrites, but can never make Believers. The Christian way of meeting a Sceptic is to treat him as conscientious, though mistaken—to oppose him with facts rather than dogmatic assertions, with arguments rather than denunciations, with appeals to reason rather than to slavish fear. If we refuse to

* Luke xix. 41, 42

give him credit for sincerity, he may treat us as Hypocrites or Fanatics. If we accuse him of designing to upturn the foundations of society, he may retort upon us that we have *designs*—to enslave the mind, and keep the intellect in subjection. But if Christians exhibited in their conduct a transcript of the heart of Him who has written upon every page of the Book of Nature, as well as in the Volume of Inspiration, His great name of LOVE, then at least one stumbling-block would be removed out of the way, and many, who now, dispirited, dejected, broken-hearted, “wander like a wave of the ocean which hath not a place of abiding,” would find repose in Him who hath said, “Come unto me, all ye that labour and are heavy laden, and I will give you rest.”

Oh! is it a delusive vision, or is there really coming for the earth a day of brighter, more transcendent glory, when man shall no longer wander from his Maker, or refuse to listen to the accents of His love? What means that flood of light, fresh bursting through the clouds that long enveloped her horizon? The blackness yields! It moves! It rolls away! earth basks in the moral sunlight of her God! It is no vision—no delusion. Nature’s voice hath spoken. Her smiling mornings,—her reviving springs,—types of the time of happy restoration,—corroborate the instinctive, unextinguishable hopes to which the soul clings firmly. Tradition, too, hath given her utterance. In seasons of sorrow and anguish, of darkness and disquietude, she seeks to hush the travailing groans of creation with the ever-present assurance of a better time to come—the restoration of the golden age. And these are but the echoes of another and a mightier voice—the voice of Revelation; *for the promise has gone forth*, that “the earth shall be filled with the knowledge of the Lord.” O glorious time! thrice glorious and thrice blest! when no mistaken inferences shall be drawn from the unrolled volume of creation—when Science and Philosophy shall take their true position as the handmaids of religion—and every voice shall join with sweet accord in one harmonious, simultaneous anthem—“HALLELUJAH! FOR THE LORD GOD OMNIPOTENT REIGNETH!”

CREATION'S TESTIMONY TO ITS GOD.

PART I.

NATURAL RELIGION.

CHAPTER I.

SOME GENERAL PRINCIPLES LAID DOWN, AND THE WHOLE COURSE OF THE ARGUMENT INDICATED—THE BEING OF A GOD DEMONSTRATED BY THE EXISTENCE OF THE MATERIAL UNIVERSE—THE RELATION BORNE BY THE MATERIAL UNIVERSE TO THE SPACE OR IMMENSITY IN WHICH IT EXISTS, SIMILAR TO, AND CAPABLE OF ILLUSTRATING, THAT BORNE BY DURATION TO ETERNITY IN WHICH IT EXISTS—DIFFERENCE BETWEEN ETERNAL AND IMMORTAL—PROOF THAT THOUGH THE MATERIAL UNIVERSE MAY BE IMMORTAL, IT CANNOT BE ETERNAL, SINCE IT MUST HAVE BEGUN TO EXIST, AND, THEREFORE, HAVE BEEN CAUSED OR CREATED—THE NECESSARY EXISTENCE OF A FIRST CAUSE, OR CREATOR, DEDUCIBLE FROM THESE PROPOSITIONS, AND ALSO FROM THE NATURE OF ETERNITY AND SPACE.

1. HOWEVER multifarious the forms of error may be, truth is simple and consistent. Opinions as well as fashions change. The axioms of one century become the jest and ridicule of another. The views of whole communities are modified or altered, as new discoveries shed their light around; or historical facts, like coins long buried, are dislodged from dark obscurity, to testify to what *has been*. Yet truth, though often rejected and despised, is still immutable.

2. Truth cannot be opposed to itself; but the consistency of some of its phases or developments with others may not be obvious. It may be only gradually unfolding itself to the view of finite creatures; or they may lack sufficient capacity, or their intellect sufficient cultivation, to see, to understand, and to reconcile what are only *apparent* contradictions.

3. Hence should we learn to reason with submission, and

draw conclusions with deep humility. If two propositions, apparently irreconcilable, are capable of separate demonstration, or of evidence nearly approaching to demonstration, it is the province of finite wisdom to reject neither—that wisdom, at its utmost stretch, may be only capable of discerning the two *extremities* of an unbroken chain, merely because the connecting links are buried or submerged.

4. If there be a God, He must be Truth. A Being all-powerful, wise, and good, must be essentially true; and nothing false could proceed from Him. He cannot err through being deceived, else His wisdom and knowledge would not be infinite. He cannot be a deceiver; for infinite wisdom and goodness forbid the supposition: nor, even were it otherwise, can deception be necessary, in any case, to accomplish such objects as Infinite power might desire.

5. If there be any Revelation from God, it must be consistent with all the actual verities of Nature, of History, and Science; for He who made the Universe, and guides the wheels of Providence, would not dictate anything inconsistent with the truths of either.

6. No Revelation can have come from God, unless it be true. Supposing a professed Revelation to display, in wonderful consistency, the attributes with which our fancy or our judgment clothes the Deity,—wisdom, power, and goodness,—yet, if it contained narrations unquestionably false in fact, we should at once conclude that it could not have come from Him.

7. If the book of nature, and the volume known as the “Sacred Scriptures,” be two Revelations from Deity, they may be *intended* to utter different truths: but their difference is no evidence of discordance. Things may be accordant which are not identical; even as, in the beautiful harmonies of organic life, male and female creatures are made, not alike, but the counterpart or complement of one another.

8. Yet, Revelation may *appear* to clash with History or Science, when in *reality* it does not. Mists, in the twilight, will so assume the shape of rivers, that all who are unacquainted with the scene by day would fancy they could trace them flowing through the vales. Thus, in the absence of sufficient light, the intellectual as well as the natural eye may be easily

deceived. That which has been insisted upon as truth, has often proved a vision. Theories once deemed perfect, have subsequently been dismissed as puerile, or rejected as untenable; and facts which have been branded as heresies, and caused their promulgators to be imprisoned or put to death, are now received as indisputably correct.

9. It is consequently unsafe to reject, on *doubtful* or *insufficient grounds*, a volume which *professes* to be a revelation from the Maker and Ruler of all things. Its plain teaching is in full harmony with our own experience, when it testifies that man by searching cannot find out God. Repeatedly has he attempted to do so, and as often failed. To this the darkness of heathen lands, and the strange mistakes of ancient Philosophers,—intellectual giants of the times in which they flourished,—bear witness. Revelation, however,—unless millions of sincere and earnest men have been following an *ignis fatuus*,—has conferred a power upon the human race which bears resemblance to a new sense. It has taught us, when prosecuting this search, wherein such multitudes have failed, where to look, how to look, and for what to look. It is like a mental telescope, by whose aid we gaze afresh through the Universe, and discover in that Universe the very truths and principles which its dogmatic teaching inculcates. It gives us a clue by which to thread our way through labyrinths wherein we should otherwise be lost. It teaches us how to solve the enigmas of nature, unravel its entanglements, and reconcile its seeming contradictions: and thus, anew,—not vainly, as before that additional light was given,—we pass through the teeming galleries of Creation in search of its great Author—GOD.

10. Such are a few of the general principles with which I start—principles I desire to be ever kept in mind, as well in the composition as in the perusal of the succeeding pages. To the majority of those principles, the most sceptical among us will not refuse assent; and I trust I shall be able to demonstrate the correctness of the residue. And now, in order that the reader may have a clearer view of the road by which he is designed to travel, I will endeavour briefly to indicate the course of argument or evidence which, in the whole Treatise, it is my intention to pursue.

11. My first object will be to show, by arguments necessarily somewhat metaphysical, though illustrated by physical Science, that there is a Being—the *Author*, not the *Soul*, of nature—by whom everything exists. I shall next proceed, by a survey of the expanded Universe, and the arrangements and motions of its orbs, to show that this Being must be infinite in *power* and *wisdom*. A nearer survey of things finite, rising up from merely chemical combinations to organized beings, and mental and intellectual phenomena, will then be taken, in order to make it manifest that Infinite *goodness*, as well as *wisdom* and *power*, are attributes of the great Author of all things. Thus the whole realm of nature will have passed under review ; and I shall then turn to the principal difficulties and objections by which the avenues of belief have been frequently obstructed—difficulties which will be found to vanish as the clearer light of Science shines upon them,—concluding this first part of the Treatise with a chapter that may be called a summary of the arguments it contains.

12. Here we may be said to have reached an harbour of rest. By the proof that there exists a Being all-powerful, wise, and good,—a personal Deity “outside of nature,”—of whom the Universe is not the *adumbration* but the *creation*, Atheism and Pantheism will both be overthrown. Yet there are thousands of conscientious individuals who will agree with us thus far, but here join issue. They believe in a personal independent Deity ; and yet, without any of the grossness of idolatry,—nay, rejecting Christianity for what they conceive to be *its* grossness,—make unto themselves a god of their own. Unable to discern the accordance between the two Revelations of Deity,—His works and His word,—they worship the God of nature, whom they hold to be a different being from the One who is revealed to us in those Scriptures which *we* call “Holy.” Another task, then, lies before us, neither less interesting nor less important than the one we shall here have brought to a close. It is, to show the agreement between the *two* Revelations,—to make it manifest that Science and Philosophy, when their language is correctly interpreted, accord with “that which is written,”—to show how the three blend their hues (like the colours of the prism) to form unsullied light—how they unite their many-toned voices in perfect harmony.

13. My first object in this second part of the Treatise will be, to show that Revelation is at once possible, probable, and morally necessary to the perfection of God's own operations; and that if the soul be immortal, and destined for another state of existence, another revelation, supplementary to that which God has made of Himself by the act of creation, may be naturally expected from the Divine wisdom and goodness. I shall then step aside to consider the evidence for the incorporeity and immortality of the soul, in order to enforce the preceding and succeeding arguments. This point gained, I shall proceed to examine the Christian Revelation, and show its consistency with what nature and reason teach concerning the Deity. The evidences by which God, in His wisdom, power, and goodness, has condescended to establish the truth of His Revelation, will next pass under review; and afterwards I shall consider the great doctrines of Revelation, their substantial agreement with the premonitions of philosophy, and their exact adaptation to the circumstances of that portion of the physical Universe with which we are acquainted. Here, again, the whole course of proof will have been examined; and I shall proceed to the removal of the principal difficulties which have obstructed the path to a reception of *Christian* truth. First in order will come the scientific difficulties connected with the *facts* of Revelation; secondly, the objections brought by "neology" and "historic criticism" against the *supernaturalism* of Revelation; and, lastly, the objections brought by "Rationalism" and its kindred "isms" to some of the great *doctrines* of the written Word: and here, as in the former division of the Treatise, I shall endeavour to dispel, by the light of Science, the clouds which, obscuring the truth, overshadow many earnest and honest hearts engaged in the pursuit of it, while, beyond those clouds, it is shining out refulgently.

14. Metaphysical arguments are usually uninteresting to the popular mind; though, to those who can grasp and appreciate them, they are the most powerful and convincing. It is probable, however, that the popular repugnance applies not so much to their nature as to the manner in which they are generally presented. The mind unfamiliar with abstractions, needs something tangible upon which to fix its grasp; and, perhaps, if clearly illustrated by physics, such arguments might be made

not only apprehensible, but interesting to all. Of a metaphysical nature, the proofs connected with the first branch of my argument or evidence must necessarily partake; but I will endeavour, by the mode just suggested, to render them at once acceptable and convincing.

15. In the numerous abstract propositions which might be submitted to prove the existence of a Deity, there can, in this age of the world, be little of a novel character, though the mode in which they are treated may be altogether new. Out of those propositions I shall select two, and endeavour, in their elucidation, to keep the thoughts of the reader engaged, and his interest constantly sustained. The first of these is—

That the Physical Universe, irrespective of any evidences of contrivance and design it may exhibit, could not have existed without an act of Creation;

the second—

That an act of Creation was equally necessary to the existence of the principle of active life, or inherent volition.

To a concise elaboration of the first of these, the remainder of this chapter shall be devoted.

16. Immensity, Eternity, and Infinitude are terms often used, without the persons who use them having any correct conception of their meaning. Few, indeed, compared with the masses of mankind, have sufficiently exercised the faculty of abstraction, to divest their minds of the things of time, sense, and finitude, so as to grasp, without aid, the ideas such words convey. It is needful for the majority, that resting-places should be found, where they may pause in their search after the full conception of these abstract attributes of being; and, also, that every variety of illustration should be used in order to fasten that conception surely on the mind. Yet with such ideas must we deal, while seeking to prove, from the very nature of Eternity and Infinitude, that the material visible Universe can neither be infinite nor eternal.

17. The existence of the material Universe no man of common sense will now venture to deny. Idealism—the system that would have made it but a phantasy—has long since been exploded. Every sense takes cognizance of its existence, and bears testimony to it. We hear its sounds; we smell its

odours ; we feel and taste, not merely its effects, but portions of its productions—of its very self. The sense of seeing takes in a wider range. The unaided eye discovers myriads of its wonders ; and telescopic power draws forth others, still more startling, from the deep dark abysses of space in which they have been hidden. “How, then,” is our first inquiry, “came the Universe into existence ? By what power, inscrutable and ineffable, were things that once did not exist placed so palpably and visibly before us ? ”

18. The only proper answer which can be given to this is, “They exist by an act of Creation :” but the Atheist avoids the question, instead of answering it, by a declaration that they are necessarily existent ; and that Matter is eternal.

19. Words are simply the representatives of thoughts ; and the word “eternal” represents two very distinct ideas, the one more comprehensive, as well as more abstract, than the other. Used in the one sense, it means simply “endless,” and is equivalent to our Saxon word “everlasting.” In the other sense, our Saxon term will express the meaning, if preceded by the preposition “from ;” since that which is “from everlasting” must necessarily be “to everlasting.” It is in the more abstract and comprehensive sense that the Atheist uses the term, meaning by “matter is eternal,” that “matter *has been* for ever.” Thus Holyoake—to quote one of the latest atheistical authorities—“I am driven to the conclusion that the great aggregate of matter which we call nature is eternal, *because we are unable to conceive a state of things when nothing was.*” And thus Miss Martineau : “Farther and farther away in the vistas of the ages, all was still what we see it now—a system of *ever-working* forces.” I shall, therefore, in the succeeding argument, and, perhaps, throughout my Treatise, (simply for the sake of clearness,) employ the words “eternal” and “eternity” in this sense only ; and take to represent the other sense, the words “endless,” “everlasting,” “immortality,” or the simple word “duration,” which I shall thus use in its most comprehensive signification, to express the whole period of finite existence, of which “time” may be considered as a portion. After this explanation, to prevent misunderstanding, I proceed at once to the argument.

20. An erroneous notion that "infinite" is only *finite ad infinitum*, and that "eternity" is only unlimited duration, or a succession of ages without beginning and without end, has prevailed, not only among the ignorant, but even among many of the wise and learned. It will be necessary, then, first to show the falsehood of this notion, in order to give full force to the evidence that from the very nature of ETERNITY and INFINITY they cannot possibly be attributes of the material Universe.

21. Eternity, simply considered, is not duration at all; but the medium in which duration holds its existence—just as space is to extension. Time, or succession of ages, passes on with its various changes, even as worlds, systems, constellations, and galaxies, roll onward in Immensity; but Eternity, like Immensity, remains fixed and the same; without beginning, as without end; involving all, pervading all, but itself continuing unchanged—an infinitude of life without bottom or shore—a never-beginning, never-ending *now*.

22. I will give this definition again in other language than my own, as reiteration in varied phraseology may assist in conveying a clearer and more definite idea to the mind; and for this purpose will call to my aid a beautiful passage from Nichol's "Architecture of the Heavens," in which he speaks of the eternity of God: "While it belongs to our mysterious imprisonment or dwelling within finitude, that we discern the Universe as finite beings, or that nothing is apprehensible by the intellect in the first instance, unless clothed in the forms of time and space, it must not be forgotten that these forms are necessary simply because of our finitude; for to Him who is absolute and eternal there is neither succession nor distance; whatever is, has been, or shall be, rests as a thing that passes not, under His unchangeable consciousness."

23. I now proceed to show that this is the only correct view which can be taken of Eternity; and to deduce the correlative fact, that Matter cannot be eternal: and in order to render these facts more comprehensible, I will bring in the aid of Space, or Immensity, to illustrate it.

24. The position of this earth, and the solar system to which it belongs, is now ascertained to be in a region somewhat thinly strewn with stars, within a vast annulus, or ring, thickly studded

with those orbs of light, which ring, from its luminous character, we have been wont to denominate "The Milky Way." The telescope of Lord Rosse has penetrated on one side beyond all the stars laterally situated in this mid-region, and searched into abysses of unoccupied space, over which it would take light many thousands of years to travel, at its ordinary rate of eleven million four hundred thousand miles a minute.* The idea once entertained, that the Universe was commensurate with Immensity, which was, in all its regions, correspondingly studded with worlds and systems, could not well have been more satisfactorily exploded. A step, at least, and an important step, has been taken towards a physical demonstration of its finitude, which I am now seeking to make evident by a course of *a priori* argument.

25. Supposing, then, we could travel with ten times the rapidity of light, and were to pursue our way through this spare region of stars, we should soon make an evident progress in our course amidst visible existences. Every inch we moved would be progress; and each minute's motion, one hundred and fourteen millions of miles, would take us a sensible distance. Every star we passed would be that one less to pass. We should speedily leave multitudes of them behind. And a hundred years might convey us (as far as our knowledge yet extends) to the bound of the visible Universe on the side to which we were wending, from whence we should discover nothing but darkness and unoccupied Immensity beyond.

26. We should thus, indeed, have made progress through the Universe; but we should have made no progress in Space. There would remain still the same unlimited and illimitable Immensity beyond. We could get no nearer to one bound, or farther from another; for in reality it has no bounds. It has neither height nor depth, length nor breadth, east nor west, north nor south. These are *relative* properties, and have reference to locality and finitude. Space, or Immensity, is an infinite, immeasurable unity.

26a. Let us take another course, and extend our mental flight still farther—threading our fancied way towards the point

* For the evidence by which these facts are supported, I must refer the reader to Nichol's "Architecture of the Heavens."

where Orion sheds down upon the earth its wonderful, and long considered *nebulous*, light. Our flight will be a longer one, but still must have its termination. On through this thinly-peopled region we pursue our path, till a stronger and intenser light bursts upon us as we approach a portion of the dazzling ring of our galaxy. Onward we go through that blazing region; pass the solitary stars that, like distant sentinels, keep the outposts of the Milky Way; and through the unfathomable depths of Space still urge our course, till what appeared a ray of *nebulous* light bursts on our view as a countless multitude of suns, vastly nearer to each other than in the "Universe" to which our system belongs, and shedding around an intenser illumination as they travel on in their glory. We see, as it were, another "universe," compared with whose vastness and splendour our own is as a planet to a sun.

27. Have we made no progress in our imaginary flight? Nearer either to the bound or the centre of the material creation we certainly have come; for we have left millions of worlds behind, which were previously before us. But we have made no progress in Immensity. There is no more of it behind us, no less of it before us, than when we started. It is unlimited still on every hand; and we are no nearer to its centre or its bounds. It has none.

28. Let us carry this idea to Eternity and Duration. Instead of taking an imaginary journey among stars, constellations, and galaxies, let thought wing her flight backward amid years and centuries, or among those great events which mark the periods of time. Many years have passed by from the era of the Reformation until now. Many more between that period and the birth of Christ. The downfall of Nineveh and Babylon will mark another period; their rise from obscurity and nothingness another. A further step backward may be taken from thence to the era of the Deluge; and another, and a larger one, from thence to that period when, according to the Mosaic account, this world received its last adjustment.

29. No one in his senses will declare that the earth, or the Universe of which it is a part, has grown no older during the periods thus indicated; or was no younger at the one I last named than it is at present. Yet this he does assert who asserts

that matter is eternal ; or that succession and motion never began. For nothing can be *more* or *less* unlimited. All possible numbers are capable of increase, if our lives would last long enough to compute, and language supply terms to distinguish, them. But there can be no degrees in Infinitude. And if the Universe be eternal, if it had no beginning, however far we travel back in the periods of Duration, one year or fifty million is the same. We can come no nearer to its origin, because it has none ; and if we can come no nearer to its origin, if we cannot approach, or even conceive of, a period when it was younger, it certainly can grow no older ; which the conclusions of right reason, and the experience of every individual existing, will declare to be absurd.

30. I will give a more familiar illustration. There is no individual who has attained the age of twenty-one, and whose capacity is above that of an idiot, who will not acknowledge that he is older now than he was twenty years ago. Yet every such individual is a part of the substance of matter, an integral portion of the physical Universe ; and if every such individual grows older, so necessarily must the Universe of which he forms a part. It may indeed be objected,—for similar objections *have* been made,—that though each organized individual grows older, because there was a commencement of his or her existence as such, yet the matter of which such individuals are composed need not necessarily thus grow older ; but may have existed without beginning. This, however, is only pursuing the fallacy a little farther, as a clear example will make evident. Take, for illustration, any atom of carbon, which forms a component part of any human frame. That atom had previously existed in another combination ; and yet before that in another : and so on, beyond the reach of our investigation or conception. But that atom of carbon must have been longer in existence, when it formed a part of the said human body, than when it previously existed in another combination ; and will have grown older, or been longer in existence, when it enters into a fresh combination after that body is wholly or partially dissolved. And thus it is also with every other atom, as well as every other individual, in the universal whole. And yet, if the Universe, or the matter of which it is composed, were eternal, it could

not possibly grow older ; since Eternity or Infinitude, as I have before shown, admits of no degrees. If Matter had no origin, we cannot approach its origin ; if it had no beginning, we cannot approach its beginning ; and if we cannot approach, or conceive of, a period when it was younger, so neither can we approach, or conceive of, any point of time when it can possibly grow older ; for if it be eternal, it can have no succession of ages, though every individual is as conscious that it has as he is of his own existence.

31. Yet another illustration may be added. Every one will readily agree that each revolution of the earth on its axis adds one more to the revolutions it has already made ; that every day and night thus completed must add one more to those which have already passed away ; even as if one world were added to the Universe it would increase the number already in existence. Yet if the Universe were infinite or unbounded it would be incapable of increase ; and if the earth had been revolving from eternity no additional revolution could increase the number already taken. They were previously unlimited, and no addition can make them more so.

32. Conscious that these abstract matters may not be easily grasped, I will now recapitulate, in order, if possible, to render them clear to all ; and gather up their substance in a lesser space. Eternity is without beginning and without end. Duration, which necessarily involves a succession of ages, must have begun, although it may have no end. Eternity is simple and complete—one un-passing now. The words younger and older, earlier and later, cannot strictly be applied to it. It had no yesterday ; it can have no to-morrow. There is scarcely a term in language that can be accurately used to define it ; though we may get some glimpse of it from the language of Scripture, accommodated to our senses—"The same yesterday, to-day, and for ever." Duration, on the other hand, must have begun, because it is capable of increase : and every year, every day, every minute that passes onward, is an addition to its age.

33. Again, we cannot conceive of any addition being made to Immensity, of any corner being added to Space, because it is already unbounded ; and, whether occupied or not, must ever remain the same : but we *can* conceive of other worlds being

added to those in existence, because Matter is *not* infinite, and might be increased indefinitely, if such were the will of the Creator. Thus, we cannot conceive of any addition being made to simple Eternity, because it is infinite or unlimited already : but we can conceive of additions being made to Duration, even a thousand or ten-thousand-fold, because every period which passes over is an increase of its age, and our limited capacities can scarcely realize any other idea than that it must be immortal, and having once commenced can never be absorbed in Eternity again. Duration, or a succession of ages, exists in Eternity, as the material Universe exists in Space ; but Eternity is not Duration, any more than Space is Matter, the infinite in each case containing the finite. It follows clearly, then, that whatever can grow older is not eternal, and has not existed from Eternity ; because Eternity cannot be increased. Yet it will not, it cannot, be denied, that Matter grows older. That every separate portion of this material Universe grows older is manifest to all ; and whatever is true of every separate portion must be true of the whole. Having shown, then, again and again, by a variety of illustrations, *that nothing can be eternal which grows older, and that Matter does grow older*, I trust I have fully made it evident that MATTER IS NOT, CANNOT BE, ETERNAL.

34. We come back, therefore, to the inquiry with which we started. "How came the Universe into existence ? By what power, inscrutable and ineffable, were things that once did not exist placed so palpably and visibly before us ?" From Eternity and Space they could not arise : These form media in which they can exist, but were utterly incapable of producing them ; and the conclusion is forced upon us (if we will listen to the voice of reason) that they were CREATED, or called forth out of nothingness, by an infinite, independent, and self-existent power. Yea, and to the existence of such a Power the nature of Eternity and Immensity themselves bear witness. Everything that *is*, either is a subsistence in itself, or an inherence in some subsistence. Man is ; he exists in the superior sense of the word : he is in himself a subsistence. Power also is, as it exists in man ; but power is not a subsistence of itself : it is only an inherence in, or an attribute of, a sub-

sistence. Thus Space, or Immensity, and Eternity are; but they *are* only in the inferior sense. Themselves, they are not subsistences; and, not being so, must be inherences, or attributes, only. And in what being, in what subsistence, can Immensity and Eternity inhere, save in that great and glorious Being whose existence I am seeking to demonstrate—who created all things by the word of His power—who filleth Immensity with His presence—the self-existent, the ineffable I AM?

CHAPTER II.

THE BEING OF A GOD DEMONSTRATED BY THE EXISTENCE OF THE PRINCIPLE OF LIFE, OR INHERENT VOLITION—LIFE NOT ESSENTIAL TO MATTER; BUT AN ACCOMPANIMENT OR ACCIDENT OF IT: A GIFT BESTOWED BY SELF-EXISTENT LIFE—SPONTANEOUS OR UNCAUSED FINITE EXISTENCE IMPOSSIBLE—SPONTANEOUS OR UNCAUSED INFINITE EXISTENCE NOT ONLY POSSIBLE, BUT NECESSARY, IN ORDER TO HAVE ORIGINATED FINITE EXISTENCE—THE NECESSARY EXISTENCE, AND THE ETERNAL EXISTENCE, OF FINITE OR CREATURE LIFE, EQUALLY IMPOSSIBLE WITH ITS UNCAUSED EXISTENCE; AND THE CONSEQUENT NECESSITY, UNDER ANY ASPECT, OF AN INDEPENDENT CREATOR, TO HAVE CALLED IT INTO BEING.

35. HAVING proved the non-eternity and the consequent *creation* of Matter as a whole, it may seem a needless effort to prove the non-eternity of any of its separate portions. The Atheist's primary position, that "matter is self-existent and eternal," having fallen to the ground, with it falls, as necessarily, the second and dependent proposition—that "motion is a principle with which all matter has been eternally instinct, the result of the universal law of attraction, and of the relative influence of bodies upon bodies."

36. The advance of scientific discovery has, also, independently, exploded the notion of the origination of organized substances by a *fortuitous* concurrence of atoms, and given a physical proof, in addition to the metaphysical one, that such a notion is unsound. It has been discovered that all elementary substances will only combine, in *unorganized* matter, in definite modes and proportions. It has further been discovered that all crystalline minerals exist only under certain geometrical forms. Such *fixed* and *invariable* laws demonstrate a *fortuitous* origin to be simply impossible.

37. We will, however, for the sake of variety of illustration, place both these proofs for a time in abeyance. We will consider the eternity of matter, and the possibility of a fortuitous and irregular agglomeration of atoms, to be moot points still. The Atheist, even with these false positions to aid him, could proceed but a very little way without the assistance of *creative* power.

38. What if motion, as a primordial principle, had, by a concurrence of fortuitous circumstances far more extraordinary than any miracle on record, or any conceivable act of creation, moulded matter into planets, suns, and systems—there are portions of matter which are organized, and possessed of the power of motion of a very different and far superior kind—not an essential, but an accidental, or imparted, property; and whence did this proceed? A question here arises quite as difficult to answer, on atheistical principles, as the former one. It is, “What and whence is Life, or inherent and conscious volition?”

39. Vain is it *now* to tell us that we

“See through this air, this ocean, and this earth,
All matter quick and bursting into birth;”

because physical science has demonstrated that *all* matter is *not* quick; and even if it were, that would only be a postponement, and not a resolution, of the question. The vegetable we behold springing from its seed, the animal from its progenitors. Thus Life is perpetuated; but that tells us nothing of its nature or its origin. The experiments of a Crosse and a Weekes have indeed demonstrated that minute insects of the *Acarus* tribe can, under peculiar circumstances, be forced by man into ex-

istence ; as later experiments on a larger scale, and to a more useful purpose, have demonstrated that chickens can be hatched by steam. In each case alike, the proof of the spontaneity of existence failed. In the one, the presence of the egg, or pre-existent germ, was known, and formed the very ground of the experiment. In the other, its absence could not possibly be ascertained, because it would naturally be too small for the human eye to see. The fair deductions of reason are by analogies carried from what we know to what we know not, rather than from what we know not to what we know. And since in every case of which we can take proper cognizance, Life, or inherent volition, *now* proceeds from a parental source, we are warranted in concluding that it also proceeds from a like source in those cases which are so minute as to baffle our powers of investigation.*

40. What then is Life ? and what its origin ? and especially what and whence is human life ? What gives to an organized body the mysterious power of assimilation, enabling it to support and add to its own structure, not, as in the case of inorganic substances, by additions without, but by additions which it vitalizes and renders a part of its own self ? What is that which is incessantly counteracting the common chemical and mechanical influences around it ; and preventing that tendency to decomposition and decay which always commence the moment it leaves the body ? What gives to a combination of gaseous and mineral substances † the principle of individual activity

* It is somewhat remarkable, as instanced by Hugh Miller ("Footprints of the Creator," pp. 233, 234), that the experiments of Crosse and Weekes, however varied, brought into existence, in all cases, the same creature, and that not a new one, but one well known before as the *Acarus horridus*, a little bristle-headed insect of the mite family, possessing great tenacity of life, and harbouring among all kinds of dirt and rubbish. How its germs came into the materials on which the several experiments were made, it is not the part of those who deny their legitimacy to explain. Enough will be shown in succeeding chapters, when the question comes more properly under consideration, to prove to any *reasonable person*, that without the presence of the germ the insect would not have been brought to life.

† The substances of which the human body is composed are, oxygen, hydrogen, carbon, nitrogen, phosphorus, chlorine, fluorine, potassium, sodium, calcium, magnesium, silicium, aluminium, iron, manganese, titanium, and, according to

and energy—inherent volition? or what endows it with the power to think, consider, reason, investigate, discuss, compare, and draw conclusions? It did not originally reside in the chemical elements, or we should necessarily witness some other manifestation of its presence. It is not the result of their combination; or the newly dead, before the process of decay commences, would possess it equally with the living.*

41. How little do we, under ordinary circumstances, conceive of the powers with which this one principle of vitality endows us! We see, hear, feel, taste, smell, and act, almost without trouble to ourselves; and know not how. Nerves of exactly the same substance and texture, or so nearly the same that Anatomists can discover no difference, minister to each of these varied senses, and convey all their different sensations to the seat of conscious life. But life departs; and however perfect some of the organs may remain, sensation, sense, and consciousness are gone. That power, obedient to whose will fifty or a hundred muscles at once combined, without hesitation or delay, and without apparent effort, to perform every, even the simplest, act of volition—that power withdrawn, the muscles move no more; and the beautifully-organized body, lately possessed of such wondrous faculties, is insensate as the matter from which it was originally formed.

42. “The organs by which life acts,” to quote the words of the Rev. Dr Harris, “may be anatomically examined and correctly classed; but life is something independent of them all:

Raspail, arsenic and copper. Of these, oxygen, hydrogen, carbon, and nitrogen, form the principal masses of the fluids or soft tissues; lime (as phosphate and carbonate of lime) that of the bones. The rest are found in smaller quantities only. All are, for the most part, organized by the power of vegetable life, before they can form parts of *animal* substances.

* If it be objected that decay of some part is often the cause of death, I answer, that in many cases—as, for example, that of death by suffocation—there is no decay whatever till after life is extinct. The blood, it is true, is not sufficiently oxygenized to carry on, according to Mr Smee’s system, the “electro-biological current;” but these circumstances, the moment after such a death, could not be worse than under any conceivable possibility they necessarily *must* be before “spontaneous” or “uncreated” and “ungenerated” life commenced.

for not one of them is universal in organized nature, and, therefore, is not essential to the vital force. The functions of these organs may be known, and the chemistry of their operations be silently and perseveringly watched, but the principle of that chemistry, the cause of these functions, are meanwhile presupposed and unapproached. The 'proximate organic principles' which the chemistry of life produces and submits to our examination, may be minutely analyzed and correctly named; but they have been produced 'in circumstances which we cannot imitate, and, in fact, do not understand.' They are, at best, only proximate principles; effects which refer us to the existence of a cause, the nature of which they do not reveal; their very number and diversity not explaining but multiplying the mysteries in which it is involved. The little 'nucleated cells' evolved from those proximate principles, and by the development of which the organic mass is supposed to be enlarged, may be known and truly described; but this is something already existing: the cause which has led to it is still presupposed. The analogy between certain crystalline and certain [organic] forms, may be interesting and familiar; but if those crystalline forms be referred to electric action, here is something which deals with electricity and employs it; or if they be referred to the form or quality of the ultimate atoms, here is something which subordinates both. Organization is not an affair of outward form merely, but of inward structure. Admitting even the possibility of the artificial imitation of some of its proximate principles, and of the cells or globules of organic life, still they are inorganic principles or globules. The very absence of the vital power shows that it is something distinct from form and elementary composition, though it may employ both; and that these artificial imitations are not organization.*

43. But let us suppose for a moment that centripetal and centrifugal force, aided by "chemical affinities, analogies, and antipathies," of which Mirabaud wrote so smoothly, and aided too, if need be, by Buffon's living molecules, had, by a lucky chance, in the course of an untold duration, brought together

* "Pre-Adamite Earth," pp. 197, 198.

the different parts of the human body, and fixed each in its right position. The conception would indeed require a larger amount of faith or credulity than any religious system I am acquainted with demands of its votaries:* but pass that by. Let us suppose that not only one, but a pair, were thus fortuitously produced, as absolutely necessary for the continuance of the species; if these forces and influences combined had effected thus much, the principal thing would still have been absent. By such means nothing better than a corpse would have been formed. Life still would have been wanting; and who was to impart it? From what portion of unintelligent matter could a Prometheus proceed? or from what heaven was he to steal the animating fire?

44. The eye, it is true, would have been in its socket; but whence was the faculty of seeing to be drawn? The ear would have been formed capable of exercising its functions when bestowed; but who was to superadd the faculty of hearing? The limbs would have been ready to move, if energy were imparted; but from whence was that energy to come? The heart would have been fixed, as the cistern wheel, at the centre, ready to urge the sluggish blood on its wonderful course; but what was to awaken its pulsations? The lungs would have been ready to expand with newly-awakened rapture on receipt of the vital air; but who was to "breathe into the nostrils the breath of life," and make this wondrous piece of organization "a living soul?" The question must again be reiterated—"What and whence is life?"

45. Professor Liebig, in his writings, leads to the conclusion,

* It is shown by Dwight, in his "System of Theology," (Sermon 2,) that the relative horizontal positions of which these different parts are capable must be expressed by more than a million of arithmetical figures, their possible vertical and oblique positions by many millions more, and all these combined must be expressed by the multiplication of these immense sums with each other. The chances, therefore, against such a union of the different parts of the human body as actually exists, even after the several parts were formed, would be such as would be expressed by this aggregate of figures; a number which all the human race who have existed since the Mosaic date of the Creation would not have been able to count if they had busied themselves with no other employment during the whole of their lives!

that all our motive power is derived from the process of digestion and nutrition; and all our animal heat from respiration. Thus the carrying on of life's functions would appear to be a continued course of chemical action—the assimilation of carbon and other ingredients from our food, and the absorption of oxygen from the atmosphere, whose union with the carbon, by combustion, supplies the amount of heat we require, and which, thus united, are given out in respiration as carbonic acid. But this, while it tells us something of the processes by which the motive power of Life is carried on and continued, tells us nothing of its nature or its origin. Yet again must the question be reiterated—"What and whence is Life?"

46. To turn to another authority: Mr Alfred Smee, in his "Electro-Biology," has done something towards unveiling the mystery in which the ordinary phenomena of Life have long been involved. If he has not clearly traced those phenomena to voltaic action, he has, at least, shown a wonderful analogy * between the two. But his system, while it serves as a further illustration of the truth that we are "fearfully and wonderfully made," cannot possibly account for the origin of Life by any other means than the exertion of Creative Power. According to that observant Philosopher, the necessary media for the exhibition of Life's active functions are "a central parenchyma and a peripheral parenchyma, supplied with bright arterial blood, and a connection between the two, consisting of a peculiar tissue called nervous fibre." These, he contends, constitute a sort of double voltaic battery, which, so long as each parenchyma is perfect, their connection properly maintained, and the supply of sufficiently oxygenized blood kept up, will continue to exhibit the phenomena of living action.†

* That eminent Christian Philosopher, George Moore, had previously imagined these facts; as witness his assertion at the commencement of the 7th Chapter of his "Power of the Soul over the Body."—"The nervous system is perhaps merely a galvanic apparatus, so contrived as that by it the chemistry of life is carried on."

† There is a class of facts which, at least, *appear* irreconcilable with this theory of Smee. Such, for example, is the one that electricity may be transmitted along a nervous trunk which has been compressed by a string tied tightly round it, whilst the passage of ordinary nervous power is as completely checked by this process as if the nerve had been divided.—See *Carpenter's "Animal Physiology,"* p. 437, edit. 1849.

47. But, granting all, yea, more than this system can possibly claim, that voltaic electricity is not only the medium of life's active operations, but its continuing cause, how, if by unintelligent nature such a frame as that of man could be organized, and such wonderful voltaic batteries be erected, how, if these impossibilities were accomplished, was the blood to be sufficiently oxygenized *to originate* the electro-biological circuit before a breath of vital air was drawn?—still, therefore, must I reiterate the question—"What and whence is Life?"

48. Or turn we for a moment from man to some of the minuter specimens of being. Take the microscope, and watch the Rotifer in its motions. When its brief life is exhausted, its highly-organized body will, in a few hours, be resolved into the elements, and leave nothing of its organization behind. But take it in the zenith of its life, and dry it, and it may then be kept for years, and restored to activity by means of water. Yea, twelve times upon one individual has this operation been performed, and the twelfth time * it manifested the same activity as before it was the first time dried. What, then, was the mysterious power that preserved it in its dormant state, when it seemed but a particle of dust—that kept it from the dissolution which follows when the vital spark is extinguished? Once more must I reiterate the question—"What and whence is Life?"

49. "There is a principle," to use the words of a powerful modern writer,† "which, whatever may be its metaphysical history or origin, is one which man perpetually recognizes, which every act of his own consciousness verifies, which he applies fearlessly to every phenomena, known or unknown; and it is this—that every effect has a cause (though he knows nothing of their connection), and that effects which bear marks of design have a designing cause. This principle is so familiar, that if he were to affect to doubt it, in any *practical* case in human life, he would only be laughed at as a fool, or pitied as insane."‡

* See Mantell's "Invisible World Revealed by the Microscope," p. 78.

† Henry Rogers' "Reason and Faith," p. 28.

‡ The nature of this conviction has, perhaps, excited more philosophical disputation than any other question. Numerous theories have been propounded to account for it: (see Sir W. Hamilton's "Discussions on Philosophy," Appendix 1, "Causality.") But whatever may be the cause of the conviction, the *fact* is indisputable.

50. Truly, every system of Atheism—if we may dignify with the name of “system” a combination of absurdities—attempts to account for effects with *inefficient causes*; but no system with which I have yet become acquainted attempts to account for such an effect as that we are considering *without a cause*. It is a fact, then,—a broad and palpable fact,—that the phenomenon of Life is present in the human creature, since every individual of the series is conscious of his or her own existence: and how are we to account for this fact?

51. The spontaneous or *uncaused* existence of such a phenomenon—its springing into being out of nothing—is an event so contrary to experience, so contrary to possibility, that few dare assert it in its plain and simple form. Mr Atkinson * informs us, that “for the spontaneous existence of the higher animals and plants, the fitting conditions do not seem now to exist on this globe.” Another, among modern “Philosophers,” † very modestly surmises, that it might take the Sun a long time to bring to life a being such as a man. And others, both among ancient and modern writers, give birth to a similar, but less distinct notions on the subject, before the later idea of “development” (which I shall treat upon hereafter) was brought into the field. For the most part, however, the mists of *Necessity* and *Eternity* are called into requisition to involve the mind in some degree of confusion and bewilderment, before we are even requested to give credit to this strangest of all impossibilities. That man “came of himself,” is too palpably an effect without a cause; and, therefore, we are, in general, only asked to believe that he “exists by necessity,” or that he “has been for ever.”

52. “Necessary existence!” “Eternal existence!” are high-sounding words. They are, it is true, a mere postponement of the difficulty; but even a postponement is no ungrateful relief when difficulty presses hard.

What, then, is NECESSITY, according to the only consistent view, if we reject as false or chimerical, the being of a God! It is a law without a Legislator—a blind, unintelligent, primordial principle, which cannot exercise choice or election, but

* “Letters to Miss Martineau.”

† Elihu Palmer—“Principles of Nature.”

must operate alike at all times and in all places. And if man be thus necessarily existent,—if human life be thus the production of what the gifted but unhappy Shelley termed “sublime necessity,”—he must be an infinite, instead of a finite, being; for the same necessity by which he exists in one point of eternity and space applies with equal force to every other point. On this principle, therefore, this very atheistical principle of *Necessity*, spontaneous or uncaused finite existence is impossible; while spontaneous or uncaused infinite existence is not only possible, but necessary, in order to have originated finite existence, or brought into being “the things that are seen.”

53. Again: to take another view. Nothing can properly be said to be necessarily existent of which it is possible to conceive, without contradiction or anomaly, that it might *not* exist; because, to be at once necessarily existent, and *not* necessarily existent, is a contradiction in terms. Now, many modern geologists either show, or suppose they have shown, a period, or succession of periods, when human Life did not exist, and the earth could not have sustained its existence—a period, or periods, prior to the last Creation, or reduction of disorder into Cosmos. Whether these theories are right or wrong, matters not to our argument. Their maintenance shows that it is possible, without contradiction or anomaly, to conceive of the non-existence of human Life; and, therefore, that such Life is not *necessarily* existent. Nor when, in imagination, we people other planets with intelligent creatures, similar to, or dissimilar from, ourselves, does the argument run at all on the necessity of the case, but upon the probability that an intelligent Creator would not call such multitudes of worlds into existence capable of sustaining intelligent Life, without giving them such intelligent Life to sustain.* The

* The great objection to the habitability of the larger planets made by the author of the Essay “Of the Plurality of Worlds,” is, that their specific gravity is so small as to render it almost evident they are merely spheres of water and vapour. I would simply reply, that we are not in a position to pronounce on the possibility or impossibility of the existence of life and enjoyment under very different conditions from those of which we are cognizant. Moreover,—even if we place in abeyance the question of economy, and the fact that many hard but

existence of such creature-life is not necessary to *their* existence. Their being and their motions can as well be carried on without it; and as it is no contradiction *per se* to suppose that planets are not inhabited by intelligent or living creatures, creature-life cannot be *necessarily* existent.

54. If, as a last resource, we suppose creatures thus endowed with Life, or inherent volition, to have *existed by necessity, as portions of the material Universe all necessarily existent*, the impossibility is still as clear. That which is necessarily existent can undergo no change; or it could not be necessarily existent in the manner in which it first existed. The first man, therefore, or the first race of men, if ever necessarily existent, must be so still; though this we know they are not, because they exist no longer: and no second or future race could possibly have existed, because the same necessity would call for their existence at first, and at all times. It follows, then, that no necessarily existent being can have a succession of races; and that living creatures capable of dying, or of reproducing their kind (of both of which man is capable), cannot exist by Necessity.

55. And now let us take a fair view of the only other subterfuge to which the Atheist can, with any consistency, resort, in order to account for the present existence of human Life. It is, that Life, as thus carried on in unbroken succession from parent to offspring, is an inherent principle of matter—like producing its like,—and has thus been carried on *for ever*.

56. It has been clearly shown by Paley* that generation, which is thus set down as an elementary principle, is not a principle at all, but a process; and that like does not always produce its like—as for instance the butterfly, the frog, the

porous substances are lighter than water,—to enable us to give judgment on such a matter as the outer planets not being composed of solid materials, we should be in possession of the knowledge in what gravity really consists. Faraday, in the third volume of his “Researches,” (1855,) has given good reasons for supposing that it is essentially connected with magnetism. If this be the case, Jupiter, Saturn, and the more distant planets *may* be solid globes, and yet, possessing a less intensity of magnetism, may have less of *attraction*, and, therefore, less of *gravity*, compared with their bulk, than our earth.

* *Vide* “Natural Theology.”

beetle, the ephemeron fly, &c., all produce creatures unlike themselves, which attain to their likeness after various stages of development—these variations being in themselves sufficient to establish the faculty of reproduction as an imparted property, an arbitrary law. But I pass over this minor point, and proceed to the great theory of eternal existence, by the demolition of which the other necessarily falls.

57. I have already proved, by the very nature of Eternity and Infinitude, that an infinite series of finites cannot possibly have existed ;* but I waive this demonstration at present, for the purpose of showing that, even regarding Eternity as Infinite Duration—an unlimited succession of ages,—all views are untenable which attempt to account for the existence of finite *Life without infinite self-existent Life to produce it.*

57a. Some men talk of an “eternal chain,” as though it were a matter easy to conceive of, and easily reconciled with fact ; whereas, it is an absurd anomaly, self-contradictory—a chimera at once bounded and unbounded, finite and infinite ! Every link in this chain is separate and distinct ; or, to lay aside the figure, every individual in the series had a beginning ; and yet we are modestly requested to believe that all united never began, but have existed for ever. A lengthened extension of the series is apt to cloud the mind unused to such questions. But let us suppose the number of generations to have been five hundred thousand, and say that since the birth of the second man they unitedly lived over a period of twelve million years ; let us suppose, too, that the first man was five hundred years old when the second was born,—will five hundred added to twelve million make an infinite number ? or may we set down Eternity—an incalculable period which had no beginning—as twelve million five hundred years ? The idea is preposterous : and make the number what we may, the result is the same. A *commencement* of human life at *some* period there must have been. Yet there could be no such commencement without a causing or creating ; and there could be no causing or creating without a First Cause or Creator.

58. It is (to take another view) a matter of daily experience, that, either aided or unaided by some foreign or superior power,

* Sections 16, 19, 20, 21, 28, 29, 30, 32, 33, 34.

living creatures produce their like—man produces man. But if every living creature, or, to limit the subject, if every man has been thus produced, then was there some one before every one ; as that which produces must certainly have been before that which it produced. Yet, to say that every one had one before him is to assert a palpable absurdity. It is the same as saying that there is one besides, or without the compass of, every one ; that there is one besides, or more than, all ; and, therefore, that all is not all.*

59. In conclusion, let us sum up this whole matter and argument in a succinct and definite shape. There is no reason why we should go back through immense periods ; for, as I have shown, when treating on the nature of Eternity, one year will lead us as near to *its* origin as fifty million ; since we cannot approach the beginning of that which had no beginning. Let us suppose, then—a supposition which all authentic historical records, and the results of geological researches, combine to substantiate—that somewhere about six thousand years ago the first pair of creatures endowed with the capacities and functions of human Life existed. The problem, then, resolves into this shape :—

“ Given on earth, six thousand years ago, the first human male and female pair, with their faculties fully developed and capable of re-producing their kind. How came they ? ”

It is clear that they either must have been there for ever—have existed by necessity—have been generated by parents—have been produced by a combination of fortuitous circumstances †—have come of themselves—have made themselves—or have been created by an Independent Power.

But they had not been there for ever ; because, if they had, they would have been there without beginning, and, therefore, have grown no older ; whereas they both grew older and died ;

* See Howe’s “ Living Temple,” part 1.

† Under this head we may class nearly all the modern atheistic systems, including those of Palmer, Frey, Buffon, and Mirabaud ; for whether the produce of the Sun, operating for a “ long time ” on the mud and slime of earth, of a combination of “ molecules,” the result of the long working of chemical affinities and analogies, or the extraordinary and peculiar placing of “ ungenerated erratic germs, with which matter may abound,” such a result must in either case be the production of “ fortuitous circumstances.”

and their posterity, begotten in their likeness, grow older and die also. Moreover, they could not have been there for ever, because the earth itself had not been there for ever. *It* also had a beginning, and grows older; and every revolution on its axis adds a day and a night to its age.

They did not exist by necessity; because the same necessity which called for their existence *then* would equally call for their existence *now*; and they do not exist. Moreover, the same necessity which called for their existence in one point of space or immensity would call for their existence in every other point; and, therefore, if they existed by necessity they must have been, and must now be, infinite, instead of finite, beings.

They were not generated by parents; because they had no parents, but were the first of their kind. And if the Atheist objects that we have fixed the first pair at a period too near our own time, I answer, it affects not the argument, since there must sometime have been a *first* pair.

They were not produced by a combination of fortuitous circumstances; since, if such a combination had, in the course of an untold duration, brought together, by accident or chance, the material frame of man, those circumstances could not have imparted Life, of which, singly or combined, they were not in possession.

They did not come of themselves; because that would be simply an effect without a cause—a palpable and acknowledged absurdity.

They did not make themselves; because, to have made themselves they must have been in being before themselves—*i. e.* have been in being before they were in being.

We are, therefore, forced to rest upon the remaining hypothesis—they were the Creation of some Independent Power.

60. Absurdities and contradictions meet us on every hand if we attempt to account for “things that are” without thus acknowledging, in all we see, the productions of an intelligent Creator.

We have viewed this question in every legitimate aspect, and seen that there is no sufficient means of accounting for the phenomena of individual existence, except by the prior, the self-existence, of an all-pervading and Infinite Power—of One who, as self-existent, is independent of every other subsist-

ence, and has within Himself the ground or cause of His own being. To His existence all nature bears its testimony; but animated nature speaks, of course, in the clearest and most eloquent voice. The reptile that crawls upon the earth with a movement different from the involuntary motion of unorganized matter; the insect that, drawn forth by the sunbeams from a state of embryonic existence, sports for a few hours in the full enjoyment of volition, then closes its life for ever; the bird that, awakened by the bright tints of morning, spreads its glad wings with rapture, and soars to heaven, as if in search of the throne of its beneficent Creator; the higher order of animals, that browse on the hills and valleys, or roam through the forest glades—all testify to the I AM, the Self-existent One, from whom they drew their various capacities of enjoyment. Man only, gifted with far higher powers, though capable, alas! of deeper prostitution, utters a voice in dissonance with that of universal nature, and exclaims, from the depths of an ungrateful heart, “No God!”

61. And what is the *belief* of the Atheist, who thus virtually accuses the Theist and the Christian of superstition and credulity? No pagan system, which in the darkest ages added its quota of blackening desolation to that which almost universally prevailed, ever required a larger share of credulity—a more entire surrender of the senses to the creed. He must believe in a thousand anomalies which he cannot reconcile with reason; in contradictions and impossibilities without number; in effects which are greater than their causes, and in the greatest of effects being produced without a cause;—and all this that he may escape from the sound and natural conclusions of reason; that he may close his eyes to the light which beams everywhere upon him, from satellite and planet, and sun and system, reflected in the voiceless but soul-speaking eyes of millions of intelligent creatures; that he may shut his ears to the voices that are ever and anon rising up with the sound of nature’s harmonies—in the hum of insects, the songs of birds, the murmur of restless waters, the wild roaring of thunders and tempests, and the thousand thousand articulations of intelligent creatures—“THERE IS A GOD WHO CREATED ALL THINGS.”

CHAPTER III.

THE POWER AND WISDOM OF GOD DISPLAYED IN THE CONSTRUCTION OF MATERIAL THINGS—THE VASTNESS OF CREATION—REVELATIONS OF MODERN ASTRONOMY AS TO THE SYSTEM OF THE UNIVERSE—THE UNMISTAKEABLE EVIDENCES IT GIVES OF DIVINE POWER AND WISDOM.

62. How beautiful is night ! The morning dawns in brilliance and glory, calling forth the perfume of a thousand flowers, and tuning to rapture the glad notes of the choristers of heaven. It fills the horizon with radiance, and earth with activity ; waking the busy hum of voices, and the murmur of commingled sounds. But morning's nearer, though really lesser, light, hides from our view the greater wonders of heaven's pathways—those innumerable and glorious orbs which stud the vast expanse—that Alphabet of Creation by which we read, in letters of peerless light, the name of HIM who made them. These night reveals ;—How beautiful is night !

63. Who hath gazed upon the face of the pale moon, which so constantly attends our earth in its course through space, and never, involuntarily, asked the question, By what power was it produced ? I can scarcely conceive of a being, young or old, savage or civilized, bond or free, who hath been privileged to gaze, again and again, upon the face of the sky, whose mind has not, at some period or other, given birth to such an inquiry.

64. "How came ?" "what caused ?" "who made ?" are among the earliest questionings of childhood, when reason puts forth its first germinations, and intuitively seeks, or feels after, the "Great Unknown." The ardent pursuits of youth, the busy cares of manhood, or the contentions and difficulties of the struggles of after-life, may silence for a while, but cannot stifle, these intuitive inquiries. They are the voices of Divinity within us, calling the mind to its home in His bosom from whom we have wandered : and ever and anon, amid the hush of other sounds, come forth those almost inaudible whispers, in all the

freshness of unsophisticated childhood—"How came?" "what caused?" "who made?"

65. Thou beautiful Orb, with pale and varying face, that modifies our darkness with reflected light, to the savage, as well as to the civilized, thou speakest of the Power that made thee! The one, indeed, may know little of thy nature or thy course. He may fancy thee placed but at a small distance from the world he inhabits, a lamp which Creative goodness has vouchsafed to light us in the hours of darkness and uncertainty. He may see, or think he sees, in thee a *new* creation every time thy thin crescent emerges from dim obscurity, and travels anew, with such apparent calmness and quiet, over the dark serene. But, even in this mistaken view, he acknowledges the Power that made and upholdeth thee. And shall the same acknowledgment be refused by him whose mental vision beholds thee as thou art—an enormous globe, a satellite attendant on our planet, gliding through the heavens with inconceivable swiftness, at the rate of more than two thousand miles an hour? If an orrery, or miniature exhibition of the motions of the planetary system, is considered to show the principle of intelligence in *its* maker, how much more ought we to acknowledge and admire the intelligence displayed in the construction of that wondrous system of which *it* is so feeble an imitation? Such vast bodies constantly moving through space, and never losing their track, or jostling each other, are evidences, indeed, of power and wisdom—of the power that made and the wisdom which directs them in their courses. Yet, what is our planetary system, our Universe—as man was wont to call it—compared with the great all of which it forms merely an infinitesimal fraction? Our Sun, with its attendant worlds, and even the whole space which the vast orbit of the outermost encloses, is but as an atom floating in the beams of infinite light!

66. And does the extension of the field of vision, the revelation of new wonders and new glories, all displaying the same Infinite and consummate skill, lessen the evidence of intelligence in their production and the guidance of their motions? If, when astonished man beheld the countless stars as only ornaments of heaven, emitting their feeble rays to earth in the

hours of darkness, he exclaimed, from the depths of an admiring and adoring heart—

“These are Thy glorious works, Parent of good!
Almighty! Thine this universal frame,
Thus wondrous fair, Thyself how wondrous then!”

can the magnificent revelations of the telescope make them appear *less* wondrous in his eyes? If when his views of the material Creation were narrow and contracted, he did not refuse to join in the glowing language of the royal Hebrew bard, —“The heavens declare the glory of God, and the firmament showeth forth His handy-work,”—shall he refuse the same testimony to Creative intelligence, when he sees what he once thought the bound of creation vanishing before him, urging its flight still forward, forward, like the apparent arch of the horizon, fleeing before him as he proceeds, till the Universe, expanding and expanding still, appears to his view like a visible shadow of the Infinite? Alas! alas! that in such contemplations the intellect should sometimes appear dazzled, darkened with excess of light; that the brain should reel, and the eye cease to behold things clearly! Alas! that while every separate conformation of matter, every world, every individual creature, would in itself, were it the only one, give sufficient evidence of an intelligent Creator,—man, intoxicated with the too potent draught of light, deeming the whole too vast to be produced by an act of creation, should come to the strange conclusion, that it made itself!

67. Turn we our gaze from the Solar System to the fixed stars that surround it. One of the nearest of these, *α Centauri*, is separated from our Sun by so wide a space, that light would be more than three years passing through the intervening distance,* at its ordinary rate of eleven million four hundred thousand miles a minute. The one which is considered next in proximity, *61 Cygni*, is thrice as distant, its light occupying more than nine years† in travelling to our orbit. Yet these

* Humboldt's "Cosmos," vol. iii. pp. 188--190.

† This is the distance stated by Mrs Somerville, as measured by its parallax - - ("Connection of the Physical Sciences," 8th edition, p. 427). Nichol states the average distance of stars of the first magnitude (*i. e.* in the interior region

suns, between which a space so utterly incomprehensible intervenes, are but examples of millions of millions multiplied by millions of millions ;* all of them, for aught we know, attended by their systems of planetary worlds !

68. It is true, all stars may not be so distant from each other. Nay, it may be reasonably conjectured that they *are not*. If we direct our search towards the lateral regions of our own galaxy,—which a few short years ago was conceived to be the Universe,—we here see the stars few and thinly strewn, when compared with what they appear to be in that wondrous ring, or annulus, known to us by the name of the Milky Way. Nor do the revelations of the most powerful telescopes give us a contrary idea of this portion of Creation. By enlarging the field of vision they draw forth into view stars of lesser apparent magnitude, previously hidden in the far abyss from the observance of the unaided eye ; but still those stars are comparatively thinly strewn, while beyond them all, at a distance which it would take light above five hundred years to pass over, the tides of space and darkness break on the outer shores of Creation, as though uttering the dread language of the Infinite, “ *Hereto shalt thou come, but no farther.*”

69. Different, however, is the view if we turn the telescope towards the Milky Way. The nebulous or hazy radiance which philosophers of old supposed to proceed from the beams of those more thickly strewn orbs of light which appeared to stud its surface, has resolved itself into multitudes of unseen, but ever-shining, worlds, whose distance hid from our view all but the milky stream of their commingled rays. Each dim nebulous spot is become a bed of stars. Cumulations which seem almost exhaustless and infinite in their number, crowd often one be-

of our galaxy) to be such as it would take light more than nineteen years to travel — (“Architecture of the Heavens,” edition 1850, p. 11). Humboldt (“Cosmos,” vol. i. p. 137, Sabine’s edition) gives 61 Cygni a considerably greater distance.

* With a magnifying power of 180, Struve considers the number of stars *visible* in the heavens as 20,374,000. (Struve “*Etudes d’Astr. Stellaire* ;” Humboldt’s “Cosmos,” vol. iii. p. 100.) Of the amazing size of some of these stars, it may be stated, as an example, that if our Earth were considered of the size of a pin’s head, the comparative diameter of α Lyrae would be two miles and a quarter !

hind another, stars upon stars, cumulations upon cumulations, on, on, on, through abysses of space which are utterly inconceivable, sending forth their rays from every hazy spot, countless as sands upon the ocean shore.

70. And if every separate sun, with its attendant system, was wisely deemed a work which none but an Infinite Creator could accomplish, what are we to conclude from the production of a Universe so comparatively immense?

71. But onward and higher still! Our flight has only just begun. We have gazed upon one galaxy, but have no more rational ground for supposing that we have been contemplating the Universe than an inhabitant of Britain has to conclude his Island Home to be the World. Standing, as our galaxy apparently does, upon one of the outer shores of being, towards whatever quarter of the heavens a powerful telescope is turned, —save that where darkness and unoccupied Immensity prevail, —distant and more distant yet in the far abysses of Infinitude, are numerous spots of milky, or nebulous haze, many of them not in the least discernible, except with the aid of high telescopic power:

And what are these dim spots of misty light,
Obscurely glimmering in the Infinite,

like visions of some far away reality? Thousands* of them have already been discovered, which thousands may be but the representatives of millions; various in their shapes, though all symmetrical, as though to indicate to intellectual beings that they were not the production of some blind, unintelligent impulse, capable of acting upon one model only: and what are these? †

* The number of nebulae whose places in right ascension and declination have been determined already exceeds 8600.

† The general form of the nebulae is spiral; and it is not impossible that all other appearances depend materially upon the period *at* which, and the position *from* which, they are respectively viewed. The Duke of Argyll, in his opening address to the British Association (1855), said, "For the first time since the days of Newton a suspicion has arisen in the minds of astronomers that we have passed into the region of other laws, and that the nebular phenomena revealed to us by Lord Rosse's telescope must be governed by forces different from those of which we have any knowledge." I do not, however, as yet see any reason

72. Long were they conceived to be worlds emerging out of chaos, suns in the process of formation, nebulosities gradually hardening or increasing in density, till they are fitted to become independent systems, members of the great commonwealth of the Universe. But the telescopes of Parsonstown, and at Cambridge, U. S., have dispelled these chaotic dreams—these dim nebulous visions. They have shown them to be independent galaxies, some of them far surpassing in magnitude and splendour the “Universe” we have just been contemplating, with its suns and systems inconceivably numerous, and its more distant background of stars, and cumulations of stars, undiscernible, in their far away positions, except by the faint and feeble twilight which their mingled beams shed upon us.*

to believe that we have penetrated beyond the region of *gravitation*. Newton proved that the same great law, acting by the inverse *cube*, instead of by the inverse *square*, would cause a revolution in *spirals* instead of *ellipses*: and it is not at all improbable that our Sun, and all the other suns in our galaxy, may *now* be performing such a spiral motion round the Pleiades. The cumulations of stars which crowd one behind another, in various portions of what appears to us an annulus, might appear, if viewed from some galaxy or nebula laterally situated, the extended limbs or threads of an immense spiral-formed cluster. The nebula in Canes Venatici, which Sir John Herschell conceived so much to resemble *our* galaxy, has been resolved by Lord Rosse's telescope into a *spiral* cluster. Nor, on the other hand, is a spiral motion anything so *outré*, even as regards our own portion of the Universe. Viewed abstractly, in relation to space, that which describes an ellipse of small variation round a *progressing* body is really making a somewhat spiral movement. Such a motion would our Moon appear to have, if it could be distinctly seen from some far distant region; and such a motion are the *planets* describing, if, as is almost demonstrated, the Sun is making progress towards the constellation Hercules. But this fact affords no more ground for modern cavillers to assert that the Moon and planets do not move in ellipses than there is reason for declaring that the tire of a locomotive wheel does not move round its axle, because tire and axle together have a progressive motion in space.

* The author of the Essay “Of the Plurality of Worlds” questions the really stellar nature of these clusters. He describes them as “*lumps*,” “*patches*,” and “*dots*” of light. Professor Powell, however (“*Unity of Worlds*,” edition of 1855, p. 188), says distinctly, “I am able to state, on the authority of those who have actually seen them in Lord Rosse's instrument, that the appearance is perfectly and brilliantly that of *stars*; distinct effulgent points of no sensible magnitude, and of whose stellar nature no doubt could remain on the mind of

73. One of these nebulous spots in the constellation of Orion may, especially from the tropics, be distinctly seen with the naked eye, shining like a soft white cloud in the depths of heaven. Yet, telescope after telescope, penetrating further and further, turned its searching ken upon it, to resolve its mystery, in vain; still it shone on, an enigma in Immensity, increased indeed in size, but only what the naked eye discovered it—a spot of hazy light. But the mighty instrument of Lord Rosse, resolving the mystery, separated its commingled rays, and showed *it* also to be a bed of stars, whose nearest orb is placed at such a distance from our earth that its light has occupied some thirty thousand years in travelling over the intervening space.* Of the gorgeousness then of that galaxy, this simple fact will give us some idea. So inexpressibly vast and brilliant it would seem to be, that our own “Universe,” the Milky Way, fades, in the comparison, into a feeble light. And yet there are other spots, as, for instance, the nebula in Hercules, and the Magellanic clouds, to which, perhaps, the nebula in Orion must give way, as comparatively faint and feeble. Nay, we are far from certain that we have yet seen even to the centre of the Universe, whose other side, by man, is wholly unexplored—that common, mighty centre, around which we may conceive all galaxies to revolve,† unseen from hence, perhaps, because the observer.” This fact, Mr Bond, of Cambridge Observatory, U. S., has fully confirmed.

* I give here the lowest computation. Fullom states that the time occupied in the transmission of this light has been at least 60,000 years.

† Analogy led Herschell to conclude that all the systems, or constellations of the Universe, revolved around a common centre. So long as it was considered that a vast central *mass* was necessary to bind and control the movements of planets and satellites, there seemed to be an objection to this conclusion: inasmuch as the ordinary theory would require this imaginary central world, which had been termed “The Throne of God,” to be equal in mass to all the rest of the Universe. This objection does not apply in the present state of scientific knowledge. There appears now no necessity for a centre so comparatively immense. In the “multiple stars” we see instances where two or more self-luminous heavenly bodies move, not around another luminous body, but round a point far outside them. Yea, even in our own system, the planets revolve not around the centre of the solar orb, but around the centre of gravity of all the masses of the system, which sometimes falls outside the circumference of the sun.—See *Humboldt's “Cosmos,”* vol. iii. pp. 196, 197.

at distance inconceivable; or because its light has not yet reached us (though other rays have reached us which have travelled for two million years),* and yet exerting its attractive force over all. What, then, must be the POWER of Him by whom such worlds, such systems, such galaxies, such a Universe was formed? The mind, amazed, looks up from planets to their suns; from suns to constellations. From single constellations it looks forth, and sees what it conceives to be the Universe. But upwards still it looks, and perceives cumulations crowd on cumulations, till every sun in that "Universe" is multiplied by thousands or by millions. It rocks—it reels—but still looks on; and sees *that* "Universe" a little fragment of the whole. Lost in the mazes of Infinitude, it asks, "Can such things be?" Yet such things are demonstrated to be. And every galaxy in the universal whole, every system in the inconceivable number of which each galaxy is composed, every planet and satellite that forms a component part of every system, every creature endowed with individual life that dwells upon each planet, (and there are thousands in a single drop of water, with organs as perfect as our own, and as perfectly adapted to their different spheres of action,) is of itself, independent of all the rest, a sufficient, a demonstrative, evidence of Creative POWER.

74. We must take, however, a more deliberate view of Creation, if we would catch more than a glimpse of the WISDOM it displays. To enumerate all the evidences of intelligence which, even at the distance from which we view it, the stellar Universe holds forth for our admiration, would be at once impossible and foreign to my purpose. I will select a few only, as illustrative examples of the rest. Infinite POWER alone could call these innumerable worlds into existence; but WISDOM *as infinite* was needed to guide them in their courses; to place them under the influence of acting and counteracting laws; to balance their forces; establish compensations for all possible interferences; and, amidst complications almost inconceivable, through the attractions and counter-attractions of different orbs upon each other, establish one grand, united, stable, and harmonious whole.

* Herschell.

75. Order is everywhere prevalent; yet it is not such *order* as could result from the operation of a blind, unintelligent law, irrespective of a Legislator's will; for "natural law," as employed by Materialists, means merely uncontrollable necessity. To take our Solar System for an example, there is so much of uniformity to be observed therein, that its collocation and motions cannot be referred to chance. There are so many departures from uniformity, that they cannot be referred to such a natural or necessary law. It is intimated by the author of the "Vestiges of the Natural History of Creation," that the planets exhibit "a progressive diminution in density from the one nearest to the Sun to that which is most distant." Such a regularity, however, which might have given some indication of a natural law, exists only in imagination. The density of the Earth, of Venus, and of Mars, is nearly the same; whilst Uranus is more dense than Saturn, which is nearer to the Sun; and the still more distant Neptune is more dense than either. Moreover, the central body itself has only one-fourth the density of the Earth. These variations manifest that no such "*uniform law*" prevailed in the collocation of our portion of the Cosmos. But they manifest, likewise, something far more important; for, according to the calculations of La Place and La Grange, in order to prevent danger arising from their influence on each other, the planets and their orbits *must have been* just as they are, and *where* they are, and their masses and periodic times exactly *what* they are, to insure the permanent stability of that portion of the Universe which is considered as belonging to the Solar domain.*

76. The author of the "Vestiges" tells us, also, that the "distances of the planets are curiously relative." But though there is an *approach* to relative distance, it is by no means exact or uniform. He tells us, further, that the motions of the Solar System are "all in one direction—from west to east:" but the satellites of Uranus (eight in number), besides differing from other satellites, in pursuing an almost circular path, all move in the opposite direction—from east to west.†

* See Mitchell's "Orbs of Heaven," p. 114, &c.

† Humboldt's "Cosmos," vol. iii. pp. 389, 390, Sabine's edition.

77. From these facts the legitimate inference is two-fold. On the one hand, deviations from uniformity, and regularity even in deviations, show that the worlds composing the Solar System—those cosmical bodies which are most open to our inspection—did not obtain their present constitution by the force of any undeviating necessary law. On the other hand, those very deviations, which manifest the inefficiency of any blind, unintelligent impulse, for the production of that system, testify to the exertion of a still higher amount of wisdom, in controlling their effects, or regulating their influence; reducing discords into harmony; and making what might well seem an element of destruction, the foundation of unfailing stability.

78. Nor must we, if we would in any proper degree estimate the wisdom exhibited in Creation, look at things *only* as they now are, working harmoniously together, without one thought of the period when *none* of them existed, and the forces which regulate their motions were not in operation. Maclaurin has very properly observed, that “the same powers which govern at present the material Universe, and conduct its various motions, are very different from those which were necessary to have produced it from nothing, or to have disposed it in the admirable form in which it now proceeds.”

79. “One uniform law of gravitation, with a force of projection impressed by one impulse on each of the bodies, could suffice to account for the revolutions of the planets round the Sun, and of the satellites around their primaries, along with the diurnal revolution of each, and the varying inclinations of the axis to the planes of their respective orbits.”* But these will neither account for their production, nor for that distribution and arrangement which renders the working of the laws by which they are now governed so beneficial and harmonious. Nor, if present arrangements were by any means to be destroyed, are there any known forces in nature capable of restoring them.

80. The collocation once made, and placed under the control of what are called “nature’s laws,” so undeviating and so

* Chalmers’s “Bridgewater Treatise,” Introductory Chapter.

calculated for stability do those laws appear, that man, in contemplating *them*, often loses sight of the Legislator who ordained them. So regular, indeed, are their operations, resulting from the exact adjustment of forces, that some perturbations of the planet Uranus, which could not otherwise be accounted for,—a drawing of its body farther from the Sun than the orbit which theory assigned,—induced several Astronomers to believe they resulted from the proximity of another planet, then unknown. In the year 1846, Mr Adams of Cambridge, and M. Leverrier of Paris, from a knowledge of the great law of Nature which Newton had discovered, calculating from those perturbations, deduced at once the presence and the magnitude of a world unknown before. The French Philosopher, pointing M. Galle of Berlin to the place it should occupy in the heavens, said, “Seek, and you will find it there.” And the Prussian, directing his telescope to the part thus indicated, and comparing what he saw with the map of the stars in his possession, discovered a stranger there, a star unobserved before—another member of our own Solar System, the planet Neptune, describing a wider orbit, but controlled by the same central power.

81. This was at once a glorious triumph of Science, and a remarkable illustration of the wisdom of HIM who stamped upon nature her immutable laws; who “*touches the stars with His finger, and they run on their course rejoicing.*” Had a blind, unintelligent impulse, like chance or necessity, begotten the Universe from nothingness, and set its orbs a moving, instead of the order and harmony in which the nicest mathematical calculations can detect no discrepance, what could be expected, but such jostling and uncertainty, such interference of one sun and planet with another, such “mad confusion and chaotic jars,” as Mirabaud * once conceived the Universe displayed.

* Any mention of Mirabaud may now seem to some persons out of date. I will only, in reference thereto, state one fact. I have been assured by the traveller of a large publishing firm, that they supply to one bookseller in Glasgow a hundred copies of Mirabaud’s “System of Nature” every half-year. Buffon’s less chaotic theory of the origin of planets, by a comet that “mistook its way” striking a piece off the body of the Sun, appeared to meet a practical refutation from Biela’s comet, in 1848. The division of that eccentric wanderer into two

82. I will give one or two examples of this nice adjustment of forces, for the sake of illustration. I commence with the general mathematical elements of the Solar System. It is necessary to the stability of that system, that the orbital motions of the planets should all be in the same direction; and that the inclinations of the planes of these orbits should not be considerable. Yet De Morgan* demonstrated, when only eleven planets were discovered, that the odds against a *chance* concurrence of both these necessities were twenty thousand millions to one: and those odds are now doubled by the discovery of the numerous planetoids between Mars and Jupiter, which all run in the same direction. How, then, can we conceive of such a collocation, unless as the product of Infinite wisdom?

83. The question may certainly be asked, whether such ex-

distinct bodies seemed to testify that its tenuity was such as would render a collision between such a body and the Sun no dangerous matter to the latter. If it even penetrated beyond the Sun's photosphere, it could make little impression upon the solar surface.

* 1. "All the eleven planets yet discovered move in one direction round the sun." 2. "Taking one of them—the earth—as a standard, the sum of all the angles made by the planes of the orbits of the remaining ten with the plane of the earth's orbit is less than a right angle; whereas, it might by possibility have been ten right angles. What prospect, [then,] would there have been of such a concurrence of circumstances, if a state of chance had been the only antecedent? With regard to the sameness of the directions, either of which might have been from west to east, or from east to west, the case is precisely similar to the following:—There is a lottery containing black and white balls, from each drawing of which it is as likely a black ball shall arise as a white one: what is the chance of drawing eleven balls all white?—answer 2047 to one against it. With regard to the other question, our position is this:—There is a lottery containing an infinite number of counters, marked with all possible different angles less than a right angle, in such a manner that any angle is as likely to be drawn as another, so that in ten drawings the sum of the angles drawn may be any thing under ten right angles: now, what is the chance of ten drawings giving collectively less than one right angle?—answer 10,000,000 to one against it. Now, what is the chance of both these events coming together?—answer, more than 20,000,000,000 to one against it. It is consequently of the same degree of probability, that there has been something at work which is not chance in the formation of the Solar System."—*De Morgan's "Essay on Probability."*

traordinary accordance may not possibly have been induced by some other general law not yet discovered? When Newton demonstrated the principle of gravitation, he showed that a body might move round the centre of attraction towards which it gravitated in any orbit, at any distance, in any plane, and in any direction;—that it might take any of the curves known as “CONIC SECTIONS;” or, if it described an ellipse, take one of any degree of eccentricity, from a perfect circle to the most elongated oval. But the motions of the planets supply no example of the play of his theory in its full latitude. They seem to be bound in a manner in which gravitation will not bind them; and whilst they obey its laws, appear to pay obedience also to some other more closely exacting one. “Permitted by that principle to move in any of the three classes of conic sections, their paths were exclusively elliptical; permitted to move in ellipses infinitely various in their eccentricities, they move exclusively in such as differ almost insensibly from circles; permitted to move at distances subordinated to no regular law, they move in a series of orbits, at distances increasing in a [nearly] regular progression; permitted to move at all conceivable angles with the plane of the ecliptic, their paths are inclined to it in angles limited in general to a few degrees; permitted, in fine, to move in either [yea, *any*] direction, they all agree in moving in the direction in which the earth moves in its annual course.”* And may not such wondrous harmony be the production of some more binding LAW superinduced upon gravitation, and thus far undiscovered? Such a question might have been reasonably entertained a hundred years ago: but Science stops not in her course for man to theorize. The calculations of COMETARY orbits have shown us gravitation in full play—have shown that no “necessary law” has been the producer of this admirable harmony, this wondrous order. *Their* motions have revealed to us every variety of curve which the principle of gravitation had suggested—hyperbolas, parabolas, and ellipses of all degrees of elongation. And thus they make it abundantly manifest, that, instead of matter being bound by a law which permitted no other orbit than ellipses of small eccentricity, with planes coinciding nearly with the ecliptic, and motions

* “Lardner’s Museum—Comets,” p. 157.

in one direction—that such a condition which is actually exhibited by the planetary bodies, and *could not*, as we have just discovered (82), be the result of chance—must have been an ordinance of Omnipotent Intelligence and wisdom.

84. I turn next to our satellite, the Moon. It was proved by Ferguson, that the ancient eclipses noted in history took place at times differing essentially from those which the calculations require; and that these differences of time regularly diminish as they approach our own era. By a comparison of the Moon's mean longitude at the period of those eclipses with the mean longitude which backward calculations give, it was clearly shown that, unless all these historical records of astronomical observations were incorrect, the Moon's mean motion is accelerating from age to age, and the orbit she describes is nearer to the Earth than at the time of those early eclipses. Strange thoughts arose in the minds of Scientific men, when these facts were first brought to light. Some perceived therein an exhibition of an element of destruction—attraction overbalancing centrifugal force; and conceived the time to be approaching when the Moon and the Earth would dash against each other. But La Place, when studying the theory of Jupiter's satellites, saw ground for believing that the accelerated motion of the Moon might be connected with the secular variation of the orbit of the Earth. Analysis has justified his conclusion. It is proved that the greater the eccentricity of the terrestrial orbit, the greater is the disturbing action of the Sun on the Moon. This eccentricity having been decreasing for ages, the Sun's disturbance of the Moon has, also, during that time decreased. The attraction of the Earth has therefore had a more powerful effect on the Moon, and been constantly diminishing her orbit, while the Moon's velocity has been augmenting for centuries, to balance the increase of the Earth's attraction. This change, however, is a periodical and regular one. So long as the Earth's eccentricity diminishes the Moon's mean motion will be accelerated; but when it has passed its minimum, and begins to increase, the mean motion of the Moon will be retarded from age to age. Thus, then, that very accelerated motion of our satellite, which was once deemed an element of destruction, is but the effect of a balance of forces—

a redeeming, a compensating, principle, which exhibits the wisdom of the Creator in providing for future contingencies and impressing with unfailing stability the Universe He made.*

85. Nor will the motions of the planets, considered in themselves, fail to exhibit the same wisdom in Him who first communicated that projectile force which urged them onwards in their everlasting way. Our Earth, and each other planet, moves in its elliptical orbit with a velocity varying every instant, though in an almost inappreciable degree. This motion is the consequence of two forces—one tending to a straight line, the effect of the primitive impulse imparted when it was first launched into space—the other, the power of attraction, which draws it towards the centre of gravity. Should the force of the primitive impulse cease, or become overbalanced by gravity, the planet would fall to the Sun. Should the force of attraction cease, the planet would fly off in a tangent into space. How great, then, the wisdom that balanced these forces, and imparted such a nice degree of direct or tangential impulse that when the planet is at the point of its orbit furthest from the Sun his central action overcomes its velocity, and brings it towards him with such an accelerated motion that at last it overcomes his attraction, and shooting past him gradually decreases in rapidity, until it again arrives at the most distant point, where his attraction prevails anew.

86. A stone thrown from the hand will move in a straight

* Playfair, in his "Illustrations of the Huttonian Theory of the Earth," remarks: "How often these vicissitudes of decay and renovation have been repeated it is not for us to determine. They constitute a series of which we see neither the beginning nor the end—a circumstance that accords with what is known concerning other parts of the economy of the world. In the planetary motions, where Geometry has carried the eye so far into the future and the past, we discover no symptom either of the commencement or termination of the present order. It would, indeed, be unreasonable to suppose that such symptoms should anywhere exist. The Author of nature has not given laws to the Universe which, like the institutions of man, contain the elements of their own destruction. He has not permitted in His works any symptoms of infancy, manhood, or old age. He *may* put an end, as He no doubt gave a beginning, to the present system at some determinate period of time; but we may safely conclude that this great catastrophe will not be brought about by any of the laws now existing; and that it is not indicated by anything which we perceive."

line till the force that directed it is overbalanced by gravity, when the Earth's attraction draws it to her surface. A ball shot from a cannon will travel much farther, because of the extra velocity of its motion, the effect of the increased force with which it is projected. The intensity of the attraction decreases as the distance increases (varying inversely as the square of the distance), so that an object at a great distance from the attracting body (or centre of gravity) is less under the influence of the attraction than one which is near; and its tangential motion or projectile impulse so much less easily overcome. Had only the same velocity been imparted to the planet Venus which urges Saturn on its way, the attractive influence would have prevailed, and the planet fallen to the Sun; or had Saturn or Neptune been urged on with the same speed as Venus, the influence of attraction would have been lost, and the planet wandered waywardly in space. What, then, but Infinite wisdom, could calculate and impart such a balancing of forces as would provide for the stability of planetary systems; and keep them, if such be the will of Him who made them, rolling on in their wondrous course for ever?

87. But though these are the primary constituents of the mechanical principles of the planetary orbits, they are not the whole. Other disturbing causes arise, through the influence of the different orbs upon each other, there being a mutual attraction between every portion of matter. This attraction, though it assists in restraining the planets from wandering from their orbits, at the same time disturbs their motions, and renders them eccentric, causing continual deviations from their more natural elliptical course. If they were attracted by the Sun only they would always move in ellipses, invariable in form and position; but ellipses are not their true motion, though the nearest approximation to it. Innumerable perturbations cause them to deviate therefrom; and, but for compensating influences, would introduce another element of destruction. The great mind of a Newton even, when contemplating these perturbations, which he left to be calculated by his successors, propounded the idea that they would "be apt to increase till the system wants a reformation." And were the conjunctions of the planets, for example, always, or even usually, to take place in the

same point of their orbits, those orbits might,* by degrees, become permanently varied, and their deviations might induce unlooked-for and destructive change. But so nicely adjusted are their various velocities, that one attraction continually compensates another. Their deviations from their mean orbits are periodical and regular, alternating with periods of restoration. Even these secular variations, which once were supposed to be uncompensated, have been shown by La Place, La Grange, and Leverrier, to be subject to the same redeeming influence.† The changes which take place are indeed minute; yet they might, as Mrs Somerville observes, be supposed to accumulate, in the course of ages, sufficiently to derange the whole course of nature, to put an end to the vicissitudes of the seasons, to alter the relative positions of the planets, and bring about collisions which would involve our whole system, now so harmonious, in chaotic confusion. But the disturbance never passes a certain limit; and the system contains a provision for complete restoration. “In the long run,” to quote the words of Dr Whewell, “the orbits and motions remain unchanged; and the changes in the orbits, which take place in the shorter periods, never transgress certain very moderate limits. Each orbit undergoes deviations on this side and on that of its average state; but these deviations are never very great, and it finally recovers from them, so that the average is preserved. The planets produce perpetual perturbations in each other’s motions; but these per-

* I use the term *might* rather than *would*, because I conceive it *possible* that another element of stability, not taken into account by La Place, La Grange, or Leverrier, could have been used by Divine Omniscience to counteract even such “untoward circumstances” as these. I mean the “equilibrium of instability,” which, it is supposed, renders stable the delicately-poised outer rings of Saturn. If our centre of attraction *does slightly vary*, why might it not have varied sufficiently to prevent destruction, even under such imagined, but impossible, circumstances?

† The telescopic planets had not been discovered when La Place and La Grange proved the perfect stability of the Solar System. Leverrier considers that they *may* be an exception to the rule. Little, however, is known of them at present. Their influence on each other may, for aught we know, be accompanied by the same compensations as are found in all other portions of our system. Nor need we make much account of such minute wanderers, whose whole diameter is scarcely greater than the distance from London to Dover.

turbations are not indefinitely progressive; they reach a *maximum* value and then diminish. The periods which this restoration requires are for the most part enormous; not less than thousands, and in some instances millions, of years; and hence it is that some of these apparent derangements have been going on in the same direction since the beginning of the history of the world. But the restoration is in the sequel as complete as the derangement;* and in the mean time the disturbance never attains a sufficient amount seriously to alter the adaptations of the system.”†

88. Yet these attractions and counter-attractions are but an infinitesimal fraction of the disturbing influences which Omniscience foresaw, and for which Omniscient wisdom provided. Our galaxy reveals to us far more transcendent wonders,—of which our nearest neighbours, α Centauri and 61 Cygni, are examples,—binary, ternary, and quaternary systems of stars; two, three, and four suns revolving round each other, or gravitating towards a common centre, a point between them all.‡ Yea, rivalling or eclipsing the six-fold combination in θ Orionis,

* “Bridgewater Treatise,” p. 140, 7th edit. A more detailed exhibition of the premises from which the result of stability has been obtained will be found in Mitchell’s “Planetary and Stellar Worlds.” It concludes with the following beautiful passage;—“So far as the organization of the great planetary system is concerned, we do not find within itself the elements of its own destruction. Mutation and change are everywhere found; all is in motion; orbits expanding or contracting, their planes rocking up and down, their perihelia and nodes sweeping in opposite directions round the sun; but the limits of all these changes are fixed; these limits can never be passed; and at the end of a vast period, amounting to many millions of years, the entire range of fluctuation will have been accomplished; the entire system, planets, orbits, inclinations, eccentricities, perihelia, and nodes, will have regained their original values and places; and the great bell of eternity will then have sounded ONE!”

† The tides, if the Theory of Lieut. Hopkins be correct (and it will certainly account for anomalies not otherwise accounted for), are another exhibition of this balancing of forces—the attraction of the Sun and Moon, which draws the waters out of equilibrium, and the centrifugal force, resulting from the rotatory motion of the Earth, which is constantly seeking to restore the equilibrium thus disturbed.

‡ The number of *apparent* multiple stars now discovered is upwards of 6000. From these will have to be deducted those which only *appear* so by being one behind the other.

it reveals to us the Pleiades, supposed by some to be its common centre, round which its innumerable suns revolve,* a centre which is itself a combination of eight or nine suns revolving round each other,—the lost one, perhaps, only hidden for a season behind its nearer sisters, again, when its period comes round, to emerge from dim obscurity in the far abysses of space, and greet anew the eyes of Earth's inhabitants.

89. Who can calculate the complications in the motions of the planets of these adjacent and connected suns? The question may indeed be asked, "How know we that there are any planetary systems save our own?" We *cannot* know, because no instruments yet constructed would enable us to see reflected light at such a distance.† But analogy would teach us that those innumerable suns shine not in vain; and in the variations of several stars, especially χ Cygni, Astronomers have thought they could discover indications of planets' motions round their orbs.‡ Who, then, I again ask, can calculate the

* Mädler supposes Alcyone, one of the Pleiades, to be the actual centre of our galaxy. Its distance is such that light, which reaches the Earth from the Sun in 8m. 18s. 2q., would take 500 years to reach us from that supposed centre. (See note 327 to Humboldt's "Cosmos," vol. iii.)

† "We see the reflected light of [emitted by] Neptune at thirty times the distance of the Earth from the Sun: if, in more powerful telescopes, to be hereafter constructed, there should be discovered three more planets, at distances successively increasing, so that the outer one should be a hundred times the Earth's distance from the Sun, this would not be the 2200th part of that from which we should have to view the reflected light of [emitted by] a planet or satellite revolving round α Centauri. Humboldt's "Cosmos," Sabine's edition, vol. iii. p. 261.

‡ In the Essay "Of the Plurality of Worlds, (p. 260, 4th edition,) it is objected that we have no *proof* of other stars being centres of planetary systems, except what resides in the *assumption* that those stars are like the Sun. Now, looking at the matter *a priori*, the best evidence that we could have of such a fact, considering the distance at which we are placed, would be, that a star should *periodically* lose a portion of its light, just as it would do by the passing of some opaque body between its face and us. If it had different periods, say that in a certain term of months or years it lost one-fourth of its light, in a certain other term one-third, and in a certain other term one-sixth, or one-half, the natural inference would be that three planets of different linear dimensions described orbits round it. And such is exactly the case with some of the variable stars. I may add, that it is scarcely possible we could discern any effect from the

complications in the motions of the planets connected with these multiple suns? What wisdom less than Infinite could foresee their perturbations, and provide, by compensating influences, for the stability of the whole? * Yet, what are these? What but atoms in the vast profound! What but isolated examples of the mighty whole! The same power and wisdom which ordained these individual compensations ordained the compensations of the Universe—suns! systems! constellations! galaxies! millions of millions of stars multiplied by millions of millions! The mind becomes lost in the contemplation of its wonders. Abashed and appalled, it shrinks back upon itself, and only can exclaim, “Great and marvellous are thy works, Lord God Almighty! in wisdom hast Thou made them all!”

CHAPTER IV.

A CLOSER VIEW OF THAT PORTION OF THE UNIVERSE WHICH MAN'S EYE CAN SEARCH, AND HIS INTELLECTUAL POWERS INVESTIGATE—THE GOODNESS, AS WELL AS THE POWER AND WISDOM OF GOD, EXHIBITED IN THE CHEMICAL CONSTITUTION OF THE EARTH AND ITS ATMOSPHERE, AND OF ANIMAL AND VEGETABLE TISSUES; AND ALSO IN THE GENERAL DISTRIBUTION OF THE DIFFERENT ELEMENTARY SUBSTANCES.

90. IN the simple fact of the existence of finite things we have seen indisputable evidences of Creative POWER. In the

motions of planets around other suns, unless the plane of their orbits correspond with the direct line of our observation; and it *may* be, though I would only modestly throw it out as a suggestion, that this is one reason why so few stars appear “variable,” compared with the number which shine with unchanging lustre.

* Captain W. S. Jacobs, at the Meeting of the British Association (1855), gave good *primâ facie* evidence that certain anomalies presented by the binary star, 70 Ophiuchi, were caused by the revolution of an opaque body round the smaller orb. Yet such a thing the author of the “Plurality of Worlds” sets down as impossible.

provision made for their stability, amidst unavoidable complications and deviations, induced by the influence of suns and worlds upon each other, we have seen evidences of Infinite WISDOM. A nearer view of created things will show us, super-added to these, equally indubitable evidences of GOODNESS, or benevolence, which were lost to our sight in the distance from which we aforesaid gazed.

91. I enter upon this branch of the subject with diffidence and difficulty, because the evidences that Organic Nature affords to substantiate the dogmas of Natural Theology have been already reaped by men of gigantic powers. In order to throw as much interest as possible into a subject so traversed, I will first take a view of the benevolent contrivance and design exhibited in the composition of the Earth and its Atmosphere, and of Animal and Vegetable Tissues; and afterwards seek for manifestations of those distinguishing marks of Creative intelligence in the formation and continuation of the Vegetable and Animal Races.

92. I need not now contend for the principle, almost universally allowed, that wisdom is best exhibited in the production of the greatest and most complicated results from the simplest causes; or in forming, from a few simple elements, a beautiful and almost infinite variety of objects,—one portion to revel in sentient enjoyment, the other to contribute to that enjoyment in every imaginable way. Yet little does man think, as he wanders over earth, looks abroad through the transparent air, or skims in his floating castles the surface of the mighty deep, how few are the elements whose combinations form the wonderful and beautiful variety of things that constantly greet and gratify his senses. He sees ten thousand objects around him, many of them presenting the most marked contrast to each other, yet in their essential constituents almost the same. He sees the face of nature

“Ever changing, ever new,”

yet deems not that life is an essential element of death, and decay is only an antecedent to re-production in another form. He beholds shapes which he loved departing from his sight, yet forgets that of what is thus apparently perishing nothing is

lost,—that fire, water, putrescence, and the process of digestion, can destroy nothing; but, whether assimilated or decomposed, every particle of matter exists in continuity, passing only into some new combination, and seeking some new sphere of being.* He observes what once were called the Elements—earth, air, fire, and water—and unnumbered varieties of animal and vegetable forms; but thinks not that the difference in the objects he beholds results less from a variation in the elements of which they are composed than from the different proportions and modes in which those elements are combined. He sees all things adapted by the great Author of Nature to his comfort and convenience, his health and innocent enjoyment, but does not imagine how slight a change in Earth or Atmosphere, or the constituents of the bodies upon which he feeds, would turn pleasure into pain, health into disease, enjoyment into disquietude, life into death.† For though the human mind has been wont, for ages past, to trace the wisdom displayed in the adaptation of all things to the purposes for which they were formed, it is only since Chemistry has made its recent advances that man has been enabled to discern that higher display of Infinite wisdom which these considerations elucidate and evolve.

* Philosophically beautiful, as well as deeply humbling to our “pride,” are the words of Dr Hamilton, of Mobile: “This beautiful world is, after all, one vast cemetery. We ourselves dwell among the dead: we feed upon the dead: the very air we breathe is but the oft-used breath of the dead: and the gay clothing we wear has been rifled from the dead: yea, even the material particles of which our bodies are composed are pillaged spoils of the dead who have preceded us. The marble that adorns our halls of state is but the mausolea of myriads of the dead entombed therein. The ground we tread on, the rocks employed in our buildings, are but compact masses of the corpses or the ashes of the dead. The water we drink teems with the living and the dead innumerable. The food spread upon our tables, the luscious fruits that tempt our taste, the rich odours of the flowers that adorn our apartments, all derive their flavour from the remains of the dead therein contained and variously combined. The very blood that circulates in our veins has reached us from sources exuding from the dead; and the lips, on the pressure of which affection lingers so fondly, are formed of materials that have passed times innumerable through processes of corruption, decay, and death.”

† “A slight modification of chemical affinity,” says Dr Ure, “would convert even our existing atmosphere into the most corrosive of liquids.”

93. The well-ascertained fact, that at least the principal part of earth's rocks are but metallic oxides,* and the still more remarkable fact, that the hardest and most precious substance in nature, the diamond, can be resolved into thin air, and, in combination with oxygen, made to form carbonic acid, have given some countenance to the theory, once deemed extravagant, that only two kinds of substances were originally created—gases and metals. At the same time it must be acknowledged as equally *possible*, that originally no substances existed in a gaseous form; all gases being capable of liquefaction or solidification, by combination with other elements. These questions, however, we may leave to future ages. Taking up things in the position in which the present state of Chemistry seems to place them, and considering that there are sixty-four *elementary* substances in nature (because we cannot yet dissolve or disunite any one of these substances), how vast! how wonderful! is the variety of things into whose composition a very limited number of those elements usually enter: and what wisdom, what goodness, does their distribution display! Wherever we turn, all necessary and innoxious substances are abundant, in the crust of the earth, the waters which float on it, and its gaseous envelope the air: while those that are comparatively unnecessary or noxious, which are adapted only to medical, or corrective use, or to aid the experimenter in his search after hidden mysteries, are seldom found, and then often only after much patient labour. How evident, then, is the benevolent and intelligent contrivance of the world's great Architect, both in the abundance of the one and the paucity of the other! For, as has been well remarked, “if the oxides of copper or of lead were as widely diffused as the oxide of iron, the result would have been most disastrous; and had carbonate of baryta been as abundant as carbonate of lime, animal life, in all pro-

* Potassium and Sodium, united with oxygen, form potass and soda. Lime is an oxide of calcium. Chalk, limestone, marble, lime-shell, and calcareous spar, are all compounds of lime and carbonic acid. Magnesia is the oxide of a metal called magnesium. Alumina, which abounds in common clay, is an oxide of a metal called aluminium. Silicia is an oxide of silicon. Quartz is nearly pure silicia. Fully, yea more than, one half of the crust of the earth, its vegetable and animal creatures, and the air that surrounds it, is oxygen.

bability, would have failed at the beginning before its deadly influence." *

94. Oxides of silicon, aluminium, calcium, and magnesium, with traces of the oxides of potassium, sodium, and iron, form the ordinary constituents of the Earth. Oxygen and nitrogen, with a slight admixture of carbonic acid and watery vapour, make up the great body of the Atmosphere. Water is formed by a chemical union of oxygen and hydrogen. The other of the anciently called elements—fire, which is really only a process of change that matter undergoes, is composed (if composition it may be called) of oxygen and carbon. The animal and vegetable world are as simple in their elements. Carbon, oxygen, hydrogen, and nitrogen, make up the great bulk of all organized bodies; though there are traces therein of phosphorus and sulphur, and occasionally a small portion of alkaline, or earthy salts.

95. The various metals with oxygen may, therefore, be said to be the chief base of Earth, oxygen and hydrogen of water, oxygen and nitrogen of air, and carbon of fire; yet, each of these once called elements has, intermingled with its own, the basis of the others; while organized beings, though chiefly carbon, partake of the components of them all. Thus OXYGEN, a chief constituent of air, combining with carbon, and kindled by a spark, makes fire; combining with hydrogen, by a somewhat similar process of combustion, makes water; supplies the respiratory consumption of organized carbonic races; by permeating metallic substances, has formed the materials of which our rocks are composed; and by its chemical action upon those rocks, forms sand, and clay, and lime. Thus HYDROGEN, itself one of the lightest and most inflammable substances in nature, in combination as the chief constituent of water, rises in aqueous vapour to soften and modify the air, and supply the Earth with dews and refreshing showers, rendering the heat of the sun less intense, and turning that which would scorch and blast the face of nature into a source of life and fertility. Thus CARBON, given forth in igneous combustion and respiration into the diffusible Atmosphere, clothes the surface of the Earth with

* "Fownes' Chemistry, as exemplifying the Wisdom and Beneficence of God," pp. 17, 18.

vegetation, of whose life it is the most essential element; or, carried beneath that surface into nature's dark laboratory, combines with metallic oxides in the formation of a vast variety of useful and beautiful substances; else vainly would man dig for coal and marble, for plumbago, for diamonds, and lustrous gems.* And thus EARTH supplies the carbonic or animal and vegetable races with their alkalies, their metals, their sulphur, and their phosphorus; and, from its vegetable covering, gives back, released from former combinations, a continual supply of oxygen for air, and fire, and water. And these are but a few and faint examples of a constant round of interchanges, on which countless millions of living beings depend for their enjoyment, and their very existence. How marvellous, then, the exhibition here displayed of benevolent contrivance!

96. But while the substances I have already descanted on form the great bulk of everything around us, there are, as previously intimated, others which, though minute in their quantities, are none the less essential to the existence of the present system of things. Of some of them, we may not yet see the necessity; but who shall presume to say, while our knowledge is so imperfect, that even one existing substance is not essential to some of the purposes of organic life and enjoyment? As a minute proportion of phosphorus has been found to be absolutely essential to the constitution of vegetable and animal creatures, so has ozone, or peroxide of hydrogen, been found to be necessary to the atmosphere, to render it capable of supporting animal life. What may be its peculiar use is yet scarcely known, unless it be the active agent in removing from the air those organic poisons to which many forms of pestilence are traceable; but experience has taught us that a deficiency of it, as

* "Carbon is a main source to us of artificial light and heat. In order that it should fulfil this end it is necessary that it should be a solid while evolving its light and heat (a gas has little, and this only a momentary, power of illumination); this is provided for by carbon being in itself always solid. But if the result of combustion had been also a solid, then the world would have been buried in its own ashes: this evil is avoided by the carbon going off in carbonic acid, which is volatile. The mass is all glowing one instant, the next it is dissipated into air."—"Typical Forms and Special Ends in Creation," by M'Cosh and Dickie.

indicated by a low state of electricity, marks the presence of cholera—an excess that of influenza.* The many soluble substances which exist in minute quantities in water, as well as the great body of sodium and salts of lime, of which the sea is the repository, may, for aught we know, be equally essential for some purposes of being or enjoyment. The latter we know to be necessary to the existence of the myriads of crustacea and polypi, as well as immense numbers of infusoria, which are there revelling in the bliss of life: while the saltiness of the sea checks evaporation; materially aids in preventing the corruption of its waters, by the accumulation of animal and vegetable remains; and depresses the freezing point by many degrees; thereby keeping the Ocean in a fluid state at seasons and in latitudes wherein it would otherwise become dangerous blocks of ice. Nor are we much more in the dark respecting the use of those mineral substances, combined in less quantities, in the waters of our inland springs and rivers. Their remedial medical effects, where they abound in a greater degree, have often been proved and tested; and the vapid taste of pure distilled water seems to be an indication of its unfitness for ordinary beverage. While, then, every real addition to our knowledge teaches us more of the use of those traces,—those lesser admixtures of other substances with the great components of nature's frame, and vegetable and animated creatures,—respecting those of which we cannot yet discern the use, instead of questioning their necessity as a constituent portion of the mighty whole, true wisdom would rather teach us to say, looking up to the benevolent Author of our being, “In wisdom hast Thou made them ALL.”

97. I have *glanced* at the elements of all things. Let me now enter more particularly into the nature and composition of Air and Water; then turn again to Earth, and take a nearer inspection of its organized beings.

98. How beautiful is this transparent Atmosphere, from which we inhale the breath of life, through which we gaze upon the face of nature, and which conveys to our senses the odours of vegetation and the melodies of sound. The most illiterate

* See Robert Hunt's “Poetry of Science,” pp. 72, 73.

cannot be unconscious of many of the purposes of usefulness and enjoyment to which it is adapted; but the deeper we examine, the more we know, the more perfect are the evidences of wisdom and goodness displayed. If anything can furnish indubitable proof of election or choice, and consequently of an electing or choosing Agent, it will doubtless be found in an occasional departure from an otherwise universal law; and if such a departure is calculated to subserve purposes of utility and benevolence, it is a clear manifestation of benevolence and intelligence in the Agent by whom this choice or election is made. Such a departure is exhibited in the gaseous covering with which our planet is enveloped.

99. There is a principle which appears to pervade all nature. It holds in their places the suns and systems of which the Universe is composed, and guides their motions. It keeps planets revolving in their orbits round their central stars, and satellites round their primary planets. It holds together the component parts of each individual world, and prevents its garniture and its inhabitants from flying off in a tangent. That principle is Gravitation. Yet the very composition of our Atmosphere is a departure from that principle, and seems to set it utterly at defiance. If the gases of which it is composed had been chemically combined, it would have been in accordance with the law of gravitation that they should float together, as they do, upon the surface of the Earth. They are not, however, combined at all; but merely mixed, or intimately blended, notwithstanding they differ greatly in specific gravity. Combined, indeed, these gases could not be, in the proportions in which they form atmospheric air; which proportions are essentially different from those of their combining equivalents;* but, even if they could be, they would then probably form a substance very different from a gaseous atmosphere. In the real state of the Atmosphere's existence, then, as separate

* Professor Faraday has shown in his "Experimental Researches," that the combining equivalents of bodies are those which contain equal quantities of electricity; electricity determining the equivalent number, because it determines the equivalent force. I do not, therefore, think it presumptuous to say, that the gases of the Atmosphere *could not* be chemically combined in proportions foreign to their combining equivalents.

gases, simply intermingled, the *natural* effect of gravitation would be, as in the case of different substances shaken together in a bottle and not chemically combined, that the heaviest would fall to the bottom, and the lighter ones float upwards. No reason can be assigned, "in the nature of things," why the components of the Atmosphere should not thus obey the law of gravitation, instead of that which has been contradistinguished as "the principle of gaseous diffusion,"—no reason save the will of Him who ordained it should be thus,—in order to the accomplishment of His wise and gracious designs, to which, under existing circumstances, it appears to be absolutely essential.

100. If the law of gravitation *had* prevailed in the Atmosphere, as in most other portions of nature, then Earth could neither have been clothed with vegetables, nor have become the habitation of races of living creatures. The gases of which the air is composed would have formed layers or strata of each kind, the one lower than the other, according to its specific gravity. Covering the sea, and at least the *lower* portions of the land, there would have been an Atmosphere of carbonic acid, poisonous to all the animal creation, and when thus existing in excess, to vegetation also: or had the waters of the Ocean absorbed and dissolved this poison, to the destruction of *its* numerous inhabitants, vegetation would have been starved to death for want of its needful supply of sustenance, and carried with it to the common grave every living thing.

101. Nor would the uplands have fared better than the lowlands and the sea. The next stratum, or layer of gas, would be oxygen, the nitrogen taking a still higher range above the tops of the loftiest mountains. But an Atmosphere of pure oxygen would be as deadly on the one hand as carbonic acid on the other. In it neither animal nor vegetable could possibly exist. Were a world furnished as Earth now is, placed under such influence, a very few hours after the gases of the Atmosphere had commenced their obedience to the law of gravitation, the process of combustion and oxydation would produce one wide blank of desolation.

102. How, then, are we to account for this diffusibility of gases, this departure from an otherwise universal law, except

as the ordination of one *All-wise, All-Benevolent, All-Powerful, from whom all principles proceed, whose fiat is the law of all things?* and who thus ordained it, in order that countless myriads of creatures, gifted with inherent volition, should revel in the enjoyment of the life and the faculties He has bestowed.

103. It has been argued that, were the quantity of oxygen in the Atmosphere greater than it is, man might be happier, and his life be longer.* The foundation of this argument was the hilarity and joyous feeling which resulted from the inhalation of nitrous oxide. I will not contend that such would not be the case, though I have no great admiration for the intoxicating and spasmodic joy which follows the breathing of nitrous oxide.† There are other purposes of utility, however, which the air subserves, besides the oxydation of the blood, or any other effects upon the animal frame. Were it less *deadened*, as it has been called,—I would rather say less diluted,—with nitrogen,‡ its effects on vegetation, as well as on earths and metals, might be deleterious instead of beneficial; and the progress of combustion would be alarmingly rapid in proportion to the increase of that potent constituent of air.

104. Two other elements, besides those we have been par-

* See Dick on the "Atmosphere."—(*Religious Tract Society*.)

† Dr Murray, in his "Sketch of Chemistry," gives a very different view of nitrous oxide; and certainly shows, by the most powerful of all arguments—experience and example—that the effects of its inhalation are often far from beneficial,—sometimes fatal.

‡ Nitrogen, as it exists in the Atmosphere, uncombined, is nearly inert, and was formerly termed azote—implying mere negation; but combined with hydrogen it forms the pungent compound ammonia; with carbon, the poisonous one cyanogen, the base of prussic acid; with chlorine, it gives rise to a fluid, oily in its appearance, but which, when merely touched by an unctuous body, explodes more violently than any other known compound, shivering whatever vessel may contain it to atoms; with iodine, it is only slightly less violent; and in certain combinations, with silver, mercury, gold, or platinum, it produces fulminating compounds of the most dangerous tendency. (See Hunt's "Poetry of Science," pp. 240, 241; and Murray's "Sketch of Chemistry," pp. 181—187.) Of quadro-chloride of nitrogen, the latter observes, in speaking of its tremendous powers: "The discoverer was severely wounded by it, though the quantity did not exceed in size that of a grain of millet seed. He was in the act of transferring it to a glass globe, when it exploded: almost all the glass in the laboratory was shivered to atoms, and the roof was blown into the air."

ticularly considering, are, as already intimated, essential to the constitution of the Atmosphere—carbonic acid and watery vapour. The former affords the chief food of the vegetable world; the latter, besides serving other important purposes, tends to keep the skin of animals and the surface of plants in a moist condition. But of vapour I shall speak more at large when considering the nature and properties of water; and of carbonic acid, when I treat of the composition of animal and vegetable tissues. To Water I now turn.

105. We have seen wonders in the Atmosphere; but not less are they displayed in that storehouse of blessings, the mighty deep. Of two gases, the one exciting life and quickening combustion, the other highly inflammable, thus chemically combined, are formed a heavy, softening liquid, capable of extinguishing, instead of supporting, fire: yet every grain of which “contains as much electricity as could be accumulated in 100,000 Leyden jars, each requiring thirty turns of the large machine of the Royal Institution to charge it—a quantity equal to that which is developed from a charged thunder cloud.”*

106. What mighty, what tremendous powers are latent here—and yet how latent! A small portion of the waters of the Ocean contains within itself explosive force † enough to blow

* See Faraday’s “Researches.”—Paine, in the construction of the helices of his magneto-electric machine for obtaining gas from water, has reduced this theory to a practical use, obtaining electric force from water.

† As I never met with any attempt to explain why certain matters are explosive, I will give my own views, which the reader can take at what they are worth. I believe their explosiveness to result from their containing a large quantity of gas, brought, by chemical combination, into a very small space. Whatever breaks the bond which thus confines it, causes it to explode. The gas thus suddenly released requires an immensely larger space to exist in, and drives everything before it that happens to be in its way. An explosion of gases is somewhat of an opposite character. A mixture of oxygen and hydrogen may be momentarily expanded by the heat of a flame; but the next moment, it exists in an immensely smaller space, as water, and the chief destructive effects result from the pressure of the Atmosphere, which seeks to fill up the vacancy thus suddenly caused. [In one of Jarrolds’ tracts, “Science for the Household,” called “Busy-body Oxygen,” published since this note was written, there is a clear account of the explosive nature of gunpowder, agreeing with these suggestions.]

the solid Earth to atoms! Yet there it rests, unharmed and inert, like coal unkindled. Nay, it extends a softening and a quenching influence through all organic nature. Such is water.

107. Turning from its components to the consideration of its properties, the most important, and that on which nearly all the chief blessings of nature in some degree depend, is its expansiveness. In obedience to this principle, it rises from Earth and Ocean into the Atmosphere; supplying one of its most beneficent constituents. What air would be without watery vapour, we know not by experience; but something analogous to its effects we may learn from the influence of those destructive winds, the Samiel, the Sirocco, and Simoon, which, passing over arid deserts, seem to have been rendered anhydrous, or at least deprived of *nearly* all its softening power. A burning thirst, a parched and shrivelled skin, and blasted vegetation, would be a few of the inevitable results of such a deficiency.

108. Water expands and rarifies by heat. The quantity of vapour which the air is capable of receiving and supporting is regulated by its heat. Hot air will hold more vapour than cold: and when air, saturated with vapour, is cooled, it causes the vapour it contains to contract, and be precipitated either in rain or mist. Thus Earth is supplied with moisture; and air, released of a portion of its charge, is prepared for the reception of a fresh supply, in the shape of exhalations.

109. But the fact that water expands by heat, and contracts by cold, does not universally apply. It is true only within certain limits. Above the temperature of $39\frac{1}{2}$ degrees Fahrenheit, it uniformly obeys this general law: at 212 degrees, it becomes steam, and still obeys it. Below the temperature of $39\frac{1}{2}$ degrees, however, the law applies no longer, but appears to be reversed. Below that point, water expands by cooling, and continues to do so until it reaches 32 degrees, or the freezing point; then it undergoes a further and sudden expansion in becoming ice. It is probable that this expansion is caused by a fresh arrangement of the particles preparatory to crystallization. Whatever be its cause, the fact is indisputable. Whereas, after this sudden expansion, the general law comes into operation again—ice contracting by cold, and expanding by

heat, even as water does in its liquid state, above the temperature already named.

110. Here, then, is another instance in which the usual laws of nature are departed from, in a manner which cannot be accounted for "in the nature of things," or on any principle whatever, without admitting the presence of contrivance and design. But in this, as in the other case we noticed, when considering the nature of the Atmosphere, the wisdom and beneficence of the arrangement are patent to the senses. As bodies contract, they become specifically heavier. In the process of freezing, therefore, before congelation begins, the water at the surface becomes heavier and sinks. Fresh portions go through the same process, till the whole is cooled, and the surface water reaches the temperature $39\frac{1}{2}$. Then, instead of contracting and becoming heavier by cold, it begins to expand, and becomes lighter than the body of the water beneath. In consequence of this, it continues as surface water, forms a crust of ice, and protects that which is beneath it from the freezing influence of the cold. Were it not for this wise and benevolent exception to the general law, every layer of water in cooling would sink, till the whole, to the utter destruction of its inhabitants, became a block of ice, which the heat of the summer sun, in temperate climates, would not have power enough to melt.

111. And now let us turn from Earth and Ocean to a consideration of the constituents of those organic races which beautify Earth's surface, or wander over its solid crust, or through its watery and aërial oceans, revelling in the enjoyment of inherent volition. I have already stated that carbon, hydrogen, oxygen, and nitrogen, form the great bulk of all organized bodies. The mode of formation of the tissues of these two distinct kingdoms is essentially different. The vegetable takes the simple elements of inorganic matter, and, by the power with which the Creator has endowed it, forms thereof an organic substance, similar in its constituents to that of the animal frame. This the animal, by the process of digestion, merely appropriates and assimilates with its own. The dependence, however, is mutual; and the relation between them more intimate than at first sight it appears to be. This mutual relation and dependence is so prominent an evidence of

wise contrivance and design, that it could not escape the notice of any Student of Natural Theology. But though it has often been dilated upon, I cannot pass it over; since it forms so natural a part of the subject in hand.

112. How admirable, as here exhibited, is the *economy* of Nature—using the word economy in its more confined and popular sense. Among the many wonders which are always before our eyes, that which is most wonderful of all seems scarcely to excite a passing thought. So constant, I had almost said so undeviating, are the supplies for the ever-returning necessities of all things, that we seem to look upon them as matters of course; or only refer them, without taking any deeper view, to the “laws of nature,” or the “principles of things,”—as though principles ordained themselves, or laws could exist without a Legislator! What, but this, could prevent the most unobservant mind from being struck with marvelling admiration at the mutual dependence of these two kingdoms of nature? We see, we know,—it is patent to our senses, and has been for thousands of years,—that vegetables, either directly or indirectly, supply the food of all animated creatures; and that the decayed excrement of animals furnishes food for plants. By this ordination a constant succession both of plants and animals is kept up; and yet we appear insensible to the wisdom that ordained it. Nor does the marvel end here. Nay, at this point it only just begins. Not only is food, or sustentation, required for the continuation of once imparted life; but respiration, both in plants and animals, is equally, if not *more*, essential. We might live for days without food; but without respiration we could not exist an hour. With every breath they inhale, animated creatures draw in oxygen from the Atmosphere; and exhaling, return it, combined with carbon, as carbonic acid. Thus a process of minor combustion is carried on, by which the blood is kept in healthy action, and the proper heat of the internal frame preserved. In like manner, by every process of outward combustion, by every flame kindled to light or warm the intelligent races of creatures, the oxygen is withdrawn from the Atmosphere, and carbonic acid returned. The provision for restoring the balance thus destroyed is nothing less than a mark of Infinite wisdom. Carbon is the

chief food of plants. By their respiratory action the very opposite effect to that of animals is produced. They withdraw the carbonic acid from the Atmosphere, and give back the oxygen it contained, the retention of which would be death to them. How wonderful, then, this conservative, this restorative, this compensatory law—that the bane of the one race should be the life-spring of the other—that each should consume the other's poison, and pay back the gift with a continual supply of that on which the other's life depends! What, less than Infinite wisdom and benevolence, could have conceived, and Infinite power ordained, such a process? *It is the fable of the phœnix more than realized—life through death, and purity springing out of corruption!*

113. Having thus briefly adverted to some of the most prominent marks of wisdom, power, and goodness, displayed in the chemical constitution of our planet, and of animal and vegetable tissues, I proceed to take a hasty glance (and a hasty one it must be) at the general distribution of these various constituents of the world; to seek for fresh evidences of wisdom and goodness there.

114. The irregularities upon the surface of the Earth, its distribution into hills, plains, and valleys, rivers, lakes, and oceans, manifest most clearly the benevolent contrivance of Him who ordained them. It is true, objections have been made to what has been called the “waste of space,” in nearly three-fourths of the surface of our globe being occupied by water; but those objections have only afforded conclusive evidence of a want of wisdom in the parties who made them. “It is not possible,” as is well observed in Chambers's excellent little work on Meteorology,* “for the elasticity of vapour to rise higher than 80 degrees, or about one inch of the Barometer. The highest temperature of the air over the ocean is 86 degrees, and it can never be fully saturated. Hence the extreme heat of tropical climates, and of the height of summer, must always be accompanied with great dryness. Although there is three times as much sea as land, this is not more than enough to keep up a sufficient moisture for the habitable countries; for, although some regions have rather more than is

* “Meteorology”—Chambers's Educational Course.

desirable, many large tracts of country remain desert and uninhabitable, solely from the dryness of their air, and the scarcity of rain. If there had been as much land surface as water, a far less portion of the globe would be habitable than at present."

115. Thus we at once see the wisdom and the goodness exhibited in the proportion of water surface, and have some insight into the advantages derived by the land from those large reservoirs of the liquid element. By their means a constant supply of vapour is kept up to moisten the skin of animals, and to bathe the foliage of plants, and convey every necessary constituent to their rootlets; that thus vegetation might afford to the animal world a constant supply of food and enjoyment. But this distribution would, for such a purpose, have been useless, had not He who made it so constituted water, that it might rise in a state of vapour into the Atmosphere, and thence, on being condensed, fall in rains, or accumulate about the mountain ridges, and descend into the plains and valleys in fructifying streams. Nor does the adaptation end here. The contrivance would still have been incomplete, had not the air been so constituted that aqueous vapour might float therein, and diffuse itself through its vast extent. And it is a remarkable fact, that though the proportion of oxygen and nitrogen in the Atmosphere is always the same,* being twenty-one parts of the former to seventy-nine of the latter, yet the quantity of carbonic acid and aqueous vapour it contains is constantly varying according to circumstances, though they are always small in proportion to the other two,—vegetation keeping up a constant drain upon the carbon, and every rush of colder air tending to precipitate the vapour to the Earth.

116. To pursue this train of adaptations—as an example of thousands more, till we had exhausted the evidences of intelligent contrivance—would be impossible, on account of the imperfection of our knowledge, and the perfection of the works

* "Air from the summits of Mont Blanc and Chimborazo, from Egypt and from London, from Paris at the level of the Seine, and from a height of nearly 22,000 feet, exhibited the same proportions of oxygen and nitrogen."—*Fownes' Chemistry, as displaying the Wisdom and Beneficence of God.*

of the Infinite. Yet one step further it seems desirable to advance. In vain, for the purpose I have specified, would all this contrivance have been,—in vain would the aqueous vapour have ascended from the Sea, and descended again to the Earth in rains, conveying moisture for the solution of nourishment to the vegetable world,—had not the Earth, the very granite and limestone rocks which form the foundation of our arable soils, contained those other essentials to vegetable structures, which from vegetables are conveyed into animal frames, and form the supporting strength of organized and sentient life.*

117. Thus mutual dependence and mutual aid run through all the departments of universal nature, exhibiting a oneness in the whole which marks it as the Creation of one intelligent First Cause. The same unerring and infinite wisdom too, which in a previous Chapter† I noticed as providing, by compensatory influences, against all the deviations in the orbits of heaven's bright luminaries, is here manifested in keeping up the balance of gases in the Atmosphere; so that from year to year, from century to century, in glens and deep defiles, on mountain tops, in level plains, over land, and over ocean, the air, as regards its chief components, is ever still the same—the

* Professor Daubeny, in his Presidential Address to the British Association (1856), made the following remarks:—"I shall point out an easy method of determining the fact that organic remains never can have existed in a particular rock, even though it may have been subjected to such metamorphic action as would have obliterated all traces of their presence. This is simply to ascertain that the material in question is utterly destitute of phosphoric acid: for inasmuch as every form of life appears to be essentially associated with this principle, and as no amount of heat would be sufficient to dissipate it when in a state of combination, whatever quantity of phosphoric acid had in this manner been introduced into the rock must have continued there till the end of time." Lest erroneous conclusions should be drawn from such a testing of the rocks, I would respectfully suggest to Professor Daubeny and his colleagues, that only a *negative* proof could thus be obtained. The presence of phosphoric acid would not be conclusive evidence that animal remains had been there, unless we were likewise prepared to prove that phosphorus and oxygen could *only* be combined by the processes of organic life; for unless phosphorus was contained in the original rocks of which the earth was composed before organized creatures existed, from whence were those organized creatures to obtain it?

† Section 87.

oxygen withdrawn by combustion and respiration being replaced by an equal amount released by the vegetable world. It matters not by what means that balance is kept up. It may be by a constant exercise of *His* providential care, without whose notice a hair falls not. It may be that, according to the laws He gave, when the air is sufficiently charged with oxygen, vegetation gives it out no longer—and we know that it emits carbonic acid in the night. It may be that the principle or process by which the equilibrium is preserved has not yet entered into the thoughts of man, or shed its faintest twilight on his philosophic dreams. But be it *as* it may, or *how* it may, it shows that wisdom, power, and goodness dwell with Him,—Creator and Preserver, who gave not only to the seas their bounds, but says to every separate element of air, “Hitherto shalt thou come, but no further; and here shall thy proud waves be stayed.”

CHAPTER V.

THE POWER, WISDOM, AND GOODNESS OF GOD, AS EXHIBITED IN ORGANIC NATURE—CELL LIFE—VEGETABLE PHYSIOLOGY—ANTECEDENT PROBABILITIES RESPECTING THE NATURE, &C., OF VEGETABLE PRODUCTIONS, PROVIDED THEY WERE THE CREATION OF A BEING ALL-POWERFUL, WISE, AND GOOD :—THESE PROBABILITIES MORE THAN REALIZED IN THE ACTUAL EXISTENCE OF THINGS AS THEY ARE—CONCLUSION.

118. So close a resemblance has been found to exist between some crystalline and vegetable forms, that pseudo-Philosophers have endeavoured to teach mankind to regard the one as only a higher class of the same phenomena as the other—a further “development” of nature’s hidden powers. Nay, if common report spoke truth, an experimental Philosopher, to whom Science, notwithstanding his occasional aberrations, has been

really indebted, was busily engaged, some fifteen years ago, in the effort to manufacture fruit, fibrine, or gluten, out of bare, unorganized matter. There are, however, maugre all resemblances, essential differences between organized and unorganized substances. If the latter obtain any increase of their bulk, it must be by the addition of homogeneous matter to their outer surface; whereas, organic creatures, whether vegetable or animal, obtain all natural additions to their structure by means of an assimilating process carried on within.

119. In the vegetable this assimilating process is by far most wonderful. Animated creatures, except, *perhaps*,* some of the lowest orders, feed upon organized materials made ready for their use. These, by means of digestion or absorption, they are enabled to convert into a portion of themselves. But the vegetable takes up the bare elements of inorganic matter, and is endowed with the power of converting *them* into cellular tissue, the basis of all organic life.†

120. There is also another essential difference between inorganic and organic substances. The one continues constantly the same, unless subjected to important alterations of temperature or pressure, or to some chemical change. The other possesses an inherent vitality, which induces constant change, and is also endowed, in some form or other, with the power of re-production.

121. The cellules or molecules of which all animal and vegetable structures are composed, might, perhaps, not unphilosophically be considered as a medium or connecting link between inertia and life. They appear to be possessed of what may be termed a *relative* vitality. So long as the creature, be it minute or bulky, of which they form a part is living, their power of re-production continues. When that creature's life becomes extinct those "little wet bladders" cease their operations. Decomposition, unless arrested by extrinsic circumstances,

* I yield it as a moot point, whether some of the lower forms of marine animals live upon infusoria, or upon the inorganic materials which the water holds in solution.

† A great portion of the matured substance of most plants and animals consists of fibrous and areolar tissue, but cellular tissue is the basis of all.

speedily commences ; and the cellular tissue of which the body was composed is resolved into inorganic elements again.

122. Cellular tissue is capable of being increased to an indefinite extent, by vegetation, generation, and assimilation ; but hitherto *no* experiments or investigations have given us any valid reasons for believing that either vegetable or animal, large or minute, is produced by any other than a seminal process, or by an extension of the parent structure into new portions, which become independent, and can maintain their lives when separated from it. The production of certain acari, parasites, and entozoa, may, and does, baffle our powers of investigation.* Yet analogy would teach us that the germ was first deposited where the living creature afterwards appeared, though we saw not the germs of the acari which Crosse or Weekes brought into existence by electricity ; and know not how the seminal principle of the tape-worm is conveyed into the human intestines. As regards the former, the very fact, admitted by Smee, that he has several times tried the experiment and always

* “ When it is remembered that most of the instances which were formerly relied on in proof of the hypothesis [of spontaneous production], can now be explained on ordinary principles, the natural inference is, that an increase of our knowledge will enable us to explain the residuary phenomena on the same principles. As to tenacity of life, it is known of some vegetable seeds that they will germinate after they have been kept for many centuries ; and that such minute organisms as flour eels, and wheel animalcules, may not only be reduced to perfect dryness, so that all the functions of life shall be suspended for years, yet without the destruction of the vital principle—but that, in ‘ despite of *drying in vacuo* with chloride of calcium and sulphuric acid for 28 days, subject to a heat of 280 deg. Fahr., some of them have been observed to recover.’ And as to the subtle manner in which germs thus tenacious of life obtain access to the interior of living bodies, the probability is that they can enter wherever air can penetrate. The fact that minute infusory animalcules can be raised with the watery vapour, and floated for a season in the atmosphere, deserves, as Humboldt remarks in his ‘ *Cosmos*,’ to be well considered in connection with this subject ; especially since ‘ Ehrenberg has discovered in the kind of dust-rain frequently encountered in the neighbourhood of the Cape-de-Verd Islands, at a distance of three hundred and eighty sea miles from the coast of Africa, the remains of eighteen species of siliceous-shelled polygastric animalcules.’ And if entozoa—creatures living in the interior parts of other animals—have been found in embryos, and in the eggs of birds, so also, says Tiedemann, have pins and small pieces of flint.”—*Harris’s “Pre-Adamite Earth,”* pp. 283, 284.

failed,* would seem to testify that acari cannot be produced unless their germs are present; and as regards the latter, it is impossible to show that the germ is not conveyed in the food we eat.

123. Nor have we merely negative reasons for believing that no living creature is spontaneously produced; or comes into existence independent of any creative fiat, or any pre-existing germ. The experiments of Schulze, as detailed in the 23rd volume of Jameson's Journal, supply us also with affirmative evidence of the fact, that where germs are excluded or destroyed, organized creatures do not spring to life.†

* "Electro-Biology," pp. 75, 76.

† The experiments are thus detailed: "I filled a glass flask half full with distilled water, in which I had mixed various vegetable and animal substances. I then closed it with a good cork, through which I had passed two glass tubes, bent at right angles, the whole being air-tight. It was next placed in a sand bath, and heated till the water boiled violently, and thus all parts had reached a temperature of 212 deg. Fahr. While the watery vapour was escaping at the glass tubes, I fastened at each end an apparatus which chemists employ for collecting carbonic acid: that to the left was filled with sulphuric acid, and the other with a solution of potash. By means of the boiling heat everything living, and all the germs in the flask, or in the tubes, were destroyed; and all access was cut off by the sulphuric acid on the one side, and by the potash on the other, I placed this easily-moved apparatus before my window, where it was exposed to the action of light, and also, as I performed my experiments in the summer, to that of heat. At the same time I placed near it an open vessel, with the same substances that had been introduced into the flask, and also after having been subjected to a boiling temperature. In order now to renew the air constantly within the flask, I sucked with my mouth several times a day the open end of the apparatus filled with the solution of potash; by which process the air entered my mouth from the flask through the caustic liquid, and the atmospheric air from without entered the flask through the sulphuric acid. The air was of course not altered in its composition by passing through the sulphuric acid into the flask; but if sufficient time was allowed for the passage, all the portions of living matter, or of matter capable of becoming animated, were taken up by the sulphuric acid and destroyed. From the 28th of May until the early part of August I continued, uninterruptedly, the renewal of the air in the flask, without being able, by the aid of a microscope, to perceive any living animal or vegetable substance, although, during the whole of the time, I made my observations daily on the edge of the liquid; and when at last I separated the different parts of the apparatus, I could not find in the whole liquid the slightest trace of infusoria, confervæ, or monad. But all the three presented themselves

124. Should it, however, at any future time be demonstrated that the molecules, corpuscles, or cells of this cellular tissue have, as suggested by Smee, the power of "taking on new forces, and aggregating in new directions," that "from modifications in the inherent power of the cell different organic bodies result,"* or that "external forces may so act upon the cell as to give rise to a totally distinct form of organization,"† it can then be shown how the production of such molecules, or cells, endowed with such vital power, is as wonderful and striking an act of creation as that of the living creatures which they form by their aggregation. Such a demonstration of semi-spontaneous generation, I am convinced, *never will be made*; yet, even if it were possible, this would only remove the evidence of Creative intelligence one step further from us, there to exist in unabated force, and leave the Atheist no standing-place in any degree firmer than what he now possesses. For it should be constantly borne in mind that *no* microscopic observation, on either vegetable or animal substances, has given even the slightest colouring to the conjecture that "mucilaginous granules *produce*, by their juxta-position, a *cytoblast* of definite form, around which a vesicular membrane forms a closed cell."‡ In every *observed* case it is a cell containing granules, or germs, that produces other cells, which, when they arrive at maturity, contain similar granules, from which proceed another generation of cells.

125. The yeast plant having been cited as an example of cellular substances "spontaneously" produced, I quote the following observations on that remarkable fungus from Johnston's "Chemistry of Common Life:"—"How singularly dependent the plant is upon the chemical medium in which it is placed is beautifully illustrated by the manner in which the humblest forms of vegetation are seen to grow and propagate. The yeast with which we raise our bread is a minute plant,

in a few days after I had left the flask open. And the open vessel too, which I placed near the apparatus, contained on the following day vibriones and monads, to which were soon added larger polygastric infusoria, and afterwards rotatoria."

* "Electro-Biology," p. 77.

† Ibid. p. 75.

‡ Humboldt's "Cosmos," vol. i. p. 349, Sabine's edition.

belonging to the division of the confervæ. If we make a thin syrup of cane sugar, and strew a few particles of this yeast upon it, they will begin to grow and propagate, will cause minute bubbles of gas to rise, and the whole syrup gradually to ferment. But if, instead of syrup of sugar, we take a thick solution of gum, the yeast will produce no sensible effect; it will neither propagate nor cause a fermentation. In the one case the minute plant has met with a somewhat congenial food; in the other it has found nothing on which it can live and grow. But in the juice of ripe grapes it has a more favourable medium still. 'If we filter this juice we obtain a clear transparent liquid. Within half an hour the liquid begins to grow, first cloudy, and afterwards thick, to give off bubbles of gas, or to ferment, and in three hours a greyish yellow layer of yeast has already collected on its surface. In the heat of the fermentation the plants are produced by millions—a single cubic inch of such yeast, free from adhering water, containing eleven hundred and fifty-two millions of the minute organisms.' The juice of the grape thus readily propagates the seeds of yeast which accidentally reach, [perpetually floating in the air,] or are naturally present in it, [existing in the juice of the living grape, or clinging to the exterior of the fruit,] *because it contains the food which, in kind, in form, and in quantity, is best suited to its rapid growth.*"

126. Thus, when the advocate of spontaneous production will condescend to cite instances or cases, the "mystery" is easily dispelled. Instead of this, however, he usually shelters himself under vague generalities. He speaks of the production of living organisms in articles or mixtures made by man, without particularizing what those articles or mixtures are; and leaving it to be inferred that man *made also* those living organisms. Among these articles, or mixtures, fermented liquors may be classed. But the yeast plant, which multiplies so rapidly in them, will also live and thrive in the juice of the ungathered grape. And if man has produced articles or mixtures in which they will propagate more readily, so has he, in an analogous manner, "produced" hot-beds, and compost-beds, in which seed will thrive vigorously, which would not, in the same climate, have germinated *at all* without such extrinsic aid.

Dogmatism is not often becoming in matters of science, seeing that the so-called "demonstrations" of one age have sometimes been the butt and ridicule of succeeding generations. Yet there are cases in which dogmatic assertions may surely be allowed. And if any one fact in nature has been more clearly ascertained than others, it is, that *no* organized structure derived its origin from a chance combination of inorganic elements.

127. The germ once placed in a proper position for development, the process naturally and at once goes on. The first structure, in the animal and in the plant, is a simple cell, and the entire fabric subsequently formed, however complex and various in its structure, may be considered as having its origin in this single monad. The cells, alike of animals and plants, multiply by the development of new cells within them; each of these becomes, in turn, the parent of others; and thus, by a repetition of the same process, a mass consisting of any number may be produced from a single one.*

128. Both plants and animals, commencing their existence when vital force is imparted, increase their volume by the introduction of new matter from without, in the development of these additional cells, in which a fluid matter is contained. The membrane that constitutes the wall of the cell is perfectly permeable by fluids and the gaseous matters they may hold in solution. Thus food is carried into the interior of the mass for the nourishment of fresh generations of cellules, each produced from a living point or germ within the substance of a pre-existing one.†

129. The formative power of the cell is, as already intimated, most evident in the vegetable world. The animal feeds upon organic matter, which it merely assimilates and incorporates with its own: but the cellular tissue of the plant is formed from inorganic matter, and is, therefore, the more wonderful of the two. There the power of the cell is exerted in the production, out of simple elements,—gases, earths, and metals,—of all the substance of the plant.

* See Carpenter's "Animal Physiology."

† Fownes on the Chemistry of Organization.

130. The distinctive or individualizing power of the cell is, however, more wonderful than its formative power. All these cells, whether of animals or vegetables, present the same appearance to the eye through the microscope, and yet their operations are most varied and opposite. A portion of the same plant may be eaten by a man and an insect, and the product of neighbouring cells be human blood and caterpillar's hair, both being made up of the same sort of *little moist bladders*.

131. Each cell secretes and prepares its own food. One decomposes carbonic acid, and, rejecting the oxygen, unites the carbon so eliminated to the elements of water; while a second produces, out of the inorganic constituents of the atmosphere, the odoriferous principle of the violet or the rose; and another is engaged in converting the albumen of the blood into the azotised principle of milk; and yet all alike are in themselves indistinguishable—just the same sort of *little moist bladders*.

132. Nor are these by any means the most wonderful of their distinctive powers. Substances possessing properties of the most opposite tendencies are made up of the very same materials. Such is the inherent power of the cell, or such the influence of individual vegetable *life* over the senseless elements of matter, that “the sweet crystallizable principle of the sugar cane, the bitter febrifuge of the willow bark, the fixed and permanent acid of the grape, the highly volatile acid of vinegar, and many other equally contrasted substances, are composed of the same three elementary bodies—carbon, oxygen, and hydrogen,—merely differing slightly in the proportions in which they are associated. A very few grains of the vegetable alkali, morphia, or a fraction of a grain of another member of the same family, strychnia, will destroy life; but the bread we subsist upon owes its nutritious power to a combination of the very same elements which, under other circumstances, give origin to the poisonous juice of the poppy, or the still more deadly principle of the ‘*nux vomica*.’”^{*} And all the plants which produce them are alike built up of *little moist*

* Fownes on the Chemistry of Organization.

bladders, so closely resembling as to be indistinguishable from each other.

133. Nay, though the startling fact was at first received with doubt and distrust, subsequent researches have confirmed, and left it indisputable, that *from the same elements, joined together in the same proportions*, the inherent power of the cell, or the individualizing influence of vegetable life, produces a whole series of compounds, differing as much from each other in all respects as imagination can conceive.*

134. Nor are these peculiarities less marked in the animal world. The individualizing power of the cell or of animal *life* therein builds up, of the same materials, creatures of the most different and the most opposite descriptions. Yet the cellular germ which every parent cell produces manifests no power of "taking on new forces and aggregating in new directions." It assumes no capricious, but a certain fixed and defined, form—that of the organized class, from a member of which it sprang. Indeed, such is here also the formative power of the cell, that not only are tribes of the same animals produced by generation, but even peculiarities of body and mind are propagated. Insanity, consumption, idiocy, as well as many trifling defects, descend from parents to their offspring. Peculiar instincts are transmitted—as those of the race-horse, the setter, the greyhound, and of various portions of the human family, individuals of which, even when isolated and removed from educational influence, follow the habits of their progenitors. Families propagate their likenesses; races retain their peculiarities; individual species their specific character; the father and the mother live again in their children: and yet all are built up of the same sort of *little moist bladders*, in which no difference can be discerned.

135. And whence this individualizing power? whence, especially, the power of the vegetable cell to produce, of the same materials, united in the same proportions, nourishment and poison, unless imparted by the Creative will of Supreme Intel-

* I give a few familiar examples of these Isomeric bodies. Essence of bergamot, essence of lemon, oil of camomile flowers, oil of juniper berries, oil of pennyroyal, and oil of turpentine, are all alike composed of ten equivalents of carbon and eight of hydrogen.

ligence? A blind concurrence of atoms, by "chemical affinities, analogies, and antipathies," could never have produced it. If "amid the varieties of restless change," atoms had combined with each other, without the interference of an arbitrary will, the same combinations, in the same proportions, would have produced the same results. The variety can only proceed from the phenomena of *individual* and *distinctive* life, whose principles are ARBITRARILY fixed, and must consequently be the production of an intelligent Creator; who, knowing the principles of all elementary substances, has chosen those which are best fitted for His purpose, and has thus produced, (through the formative agency of the cell,) by His Almighty power and unerring wisdom, mainly out of carbon, oxygen, hydrogen, and nitrogen, the endless varieties of organic life.

136. If we glance at the lowest forms of vegetable being, we shall find the simple cell constituting the entire plant of the yeast fungus, and of the red snow, so abundant in the Arctic regions. The germ consists of a minute granule, in which no distinction of parts can be observed; but this, by imbibing water and other materials, soon enlarges,—and a distinction between the contained and containing parts, the cell-wall and the cavity of the cell, is speedily observed. The enlargement continues until the full size of the individual is arrived at; and the fluid the cell contains is then observed to have a number of minute granules dispersed through it, which resemble the original germ. These granules are at last set free by the bursting of the parent cell, which, thus bursting, ceases to exist, or dies; and its progeny commence life for themselves, and go through the same series of actions as those performed by the parent substance.*

137. In the higher order of plants the principles of vegetation are further developed; but in the highest as well as the lowest all the important functions are performed by these simple cells; for the whole plant is an assemblage of such cells, with a frame-work of harder fibrous tissue, elaborated by them. An apparently dead grain is buried in the earth—it may be by the hand of man, it may be by the winds that sweep across its bosom, aided by descending rains. But its burial-place

* See Carpenter's "Animal Physiology."

becomes the theatre of a mighty resurrection. During the chilling frosts of winter it remains as if dead ; but when the genial influence of the sun unlocks the fetters that bound the earth and water in one solid mass, imbibing through its integuments the moisture thus released, it swells, the tissue is softened, and individual vital force begins. The seed has now attained the power of decomposing water, the oxygen of which combines with some of its carbon, and is expelled as carbonic acid. Its starch is thus converted into sugar, which supplies the developing embryo with its necessary nourishment. Lengthening downwards by the radicle, and upwards by the cotyledons, which assume a green tint as they rise above the earth, the seed at length becomes a plant. Instead of giving off carbonic acid, it now imbibes it, the cotyledons acting as the lungs, by which it is conveyed to the roots, and circulated through the plant, where the carbon is retained, and the oxygen given back to the atmosphere. The plant, hitherto little more than an arrangement of cellular tissue, whose cells secrete and prepare their own food, now manifests the phenomena of a more individual life. It commences with a slight development of vascular and fibrous tissue, appearing as a cylinder lying in the centre of the sheath. The young root then lengthens. It absorbs moisture from the soil, always more or less charged with soluble salts ; and this is impelled upwards to a point from which the terminal bud or plumule springs. First as a little twig this plumule ascends ; and, exerting a more energetic action on the carbonic acid of the atmosphere than the cotyledons could do, by its means some woody fibre is deposited in the centre of the root. From this time the process of lignification goes on through all the fabric, the increase and continued life of the plant depending upon the development of a true leaf from the plumule. The plumule at length unfolds itself, and the twig is metamorphosed into a leaf. The leaf aërates the sap it receives ; effects the decomposition of the carbonic acid, the water, and probably the ammonia also, which it imbibes from the atmosphere ; and thus returns to the pores, which communicate with the pneumatic arrangements of the plant, the necessary secretions for the formation and development of the whole structure. By these wonderful processes,

from the bare, unorganized elements of matter cellular tissue increases its volume by adding to the number of its cells; and simple gases, earths, and metals, are converted into living things.

138. In its earliest stages, the process of transformation bears a strong resemblance to merely chemical changes. Yet it must not be imagined that it "consists in the first place of a mere oxydation of the carbon in the seed—a slow combustion by which the spark of life is kindled. The hydrogen of the water plays an important part, and, combining also with the carbon, forms necessary compounds; and by a secondary process gives rise again to water, by combination with oxygen in the cells of the germinating grain. Nor must we regard this secondary class of phenomena as a mere mechanical process for combining carbonic acid; but the result of the combined influences of all the physical powers and life superadded."*

139. Such, then, is a brief and general view of vegetable physiology; and thus are those tissues eliminated which supply, directly or indirectly, the constantly recurring wants of all the multitudinous races of animated creatures. And now, by way of deviating from the *trodden* path, and throwing a little freshness round a subject which has been well-nigh exhausted by men of most commanding intellect, let us take a sort of *a priori* gaze at vegetation, and, reasoning from cause to effect, instead of from effect to cause, consider what would be antecedently probable, *if* the Universe were the work of an intelligent and benevolent Creator.

140. First, as in the present state of things it is evident that vegetation is necessary for the sustenance of the animated races, it is natural to suppose that vegetation would, as far as possible, if it were the production of a Being all-powerful, wise, and good, be adapted to every climate on the surface of the earth. In carrying out this object there would be a vast number of difficulties to be overcome—difficulties connected with the form and position of the earth, and its diurnal and annual motion. Philosophers most conversant with such subjects, have assured us that the form of the earth is a necessary conse-

* Hunt's "Poetry of Science," pp. 352, 353.

quence of its motions, and that those motions, as well as its size and weight, are the *best*, if not the *only*, ones adapted to the well-being of the creatures existing on its surface.* But whether this be so or not, there is, under present arrangements, a vast difference in the climates of various portions of the earth; heat and cold, moisture and dryness, and alternations between one and the other, so characterizing different parts of it, that the vegetation which would be fostered and sustained by the one would by the other be inevitably destroyed. Moreover, if the portions of the earth at a distance from the equator should ever be densely peopled with animated creatures, it would be next to impossible for its vegetation to liberate sufficient oxygen for their consumption. Thus, by respiration and combustion, the atmosphere would be in danger of deterioration from the increase of carbonic acid, unless counter-acting influences were provided. These, and a thousand other difficulties, would all have to be provided against in clothing the earth with vegetation; difficulties with which no finite intellect would be able to grapple; and yet it may be considered as antecedently probable they would all be overcome, for the perfect accomplishment of such an object, *if* the Universe were the creation of a Being all-powerful, wise, and good.

141. And such is the actual state of things; and thus vegetation has been, and still is, adapted to every condition and every change of inorganic matter. Our Earth exhibits, exhumed from the depths of her dark bosom, ten thousand forms of ancient vegetable life which covered her with luxuriance in other and far different states of her existence—supplying the wants of creatures which then ranged upon her surface, or wandered in her seas. Her dark depths indeed reveal to us a period when, as far as human research can discover, organized being was unknown. But it would seem as though all the net-work of inorganic creation—its chemical and mechanical changes, its crystallization and stratification, its upheavings, denuditions, and convulsions—were only to prepare it for higher and still higher forms of organic and sentient life, as manifestations of the Self-living One. At every stage of its

* Whewell's "Bridgewater's Treatise," Book 1, *passim*.

progress, since vegetation first commenced, successive acts of creation have called into existence new and abundant vegetable creatures. They live, they thrive, they multiply in their many hundred-thousand forms, adapted to every inorganic change; to climates, hot, cold, and temperate; to land, sea, and river; to marsh, soil, and rock:—"to the bare granite and the recent cinders of the volcano, to the emerging coral reef and the dark recesses of the mine, to the sand of the torrid zone and the perpetual snow of the poles—as if wisdom rejoiced in the occasion which such apparent difficulties and extremes afforded for displaying the fertility of its resources; showing that the conditions destructive of one form of life can be essential to the existence of another; and that in its hand the same general plan admits of diversity of adaptations without end."* Here, clothing the bare rock with a covering which shall be subservient to higher purposes in after-years—there, withdrawing, by the action of its leaves, the carbonic acid from the atmosphere, and setting free the oxygen for animal respiration;—here, succulent even amidst arid sands, retaining, by the closeness of its integuments, the moisture which is necessary for its support—there, draining the soil of its superfluous moisture, and giving it forth through its pores into the atmosphere in revivifying streams;—here, striking its root into the flinty rock—there, floating on the surface of standing water, and covered with a coating of mucus, which forms a sort of varnish to protect it from decomposition;—here, revelling in the luxuriance of a tropical summer, and liberating a superabundance of oxygen for colder climes—there, covering earth's cold bosom in arctic regions, and furnishing the reindeer with its food;—here, clothing the nakedness of the frightful precipice, the yawning chasm, and the rugged mountain craig—there, adding grace and beauty to the wide spread and otherwise dismal savannah—Vegetation in seventy thousand different species, extending into unknown varieties, tells us, that that which we conceived to be antecedently probable *has* been accomplished; and thus testifies to the existence of a Being all-powerful, wise, and good.

* Harris's "Pre-Adamite Earth," p. 204.

142. But, secondly, it is antecedently probable that, if the Universe were the production of an intelligent and benevolent Creator, Vegetation would not only be made to serve various purposes of utility, but also to add to the happiness of intelligent creatures, by awakening and gratifying a sense of the beautiful—thus extending at once an enlarging and a softening influence over the mind. I need not ask whether this object has been actually accomplished. The influence of Vegetation on the mind in awakening sensations of pleasure, improving the taste, and originating or correcting our ideas of beauty, is too patent to admit of any question. Flowers, the bright eyes of nature, sparkling everywhere, awaken some of the first impulses of wonder and admiration in childhood; and, all through life, Vegetation exerts upon our mental faculties an influence which we scarcely can appreciate; as “verdure of every shade, flowers of every tint, plants and fern, bush and shrubs and trees, as varied in appearance as in character, everywhere present themselves, gratifying the eye with the most pleasing combinations of form, and grace, and colour.”*

143. But yet more: as though to testify to the abounding benevolence of the Creator, there is superadded what we scarcely *could* consider as antecedently probable. Not only are the *forms* of vegetation interesting and gratifying to the mind, but other sources of gratification are added of a more redundant and gratuitous description. The fresh oxygen it emits quickens the animal spirits. Its thousand fragrant odours regale the sense of smelling; and its fruits are calculated to gratify the taste, as well as nourish the body—most beneficently ministering to our luxuries as well as to our wants.

144. Thirdly, it is antecedently probable that, if the Universe were the production of an intelligent and benevolent Creator, whose fiat called into existence “the herb yielding seed, and the fruit-tree yielding fruit after his kind,” He would take especial care of the re-productive department, in order that, amid a thousand possible accidents and contingencies, *their* purpose might not fail. Moreover, it might be considered as antecedently probable that the processes of re-production

* Fullom's “Marvels of Science,” p. 246.

might be carried on by a variety of different means, provided it were the will of such a Creator clearly to intimate to intelligent creatures that vegetable forms "were *not* the production of some blind, unintelligent impulse, capable of acting upon one model only."

145. And what, in this respect, is the actual state of things? Does it, or does it not, realize these probabilities? If we glance first at those humble forms of vegetable life, the lower thallogens, we see a depth of wisdom and goodness in the ordination of that peculiarity which was seized upon by the author of the "Vestiges of the Natural History of Creation," as an argument for the transmutation of species. Their sporules, or germinating principles, which are so light as to be floated about in the air almost invisibly, will produce algæ in water, fungi on decayed vegetable matter, and lichens upon rock or stone. And thus, as soon as a granite peak, or a coral reef, is, by some process of upheaval, raised above the former surface of the earth, or the level of the ocean, these pioneers of higher vegetation, which are floating everywhere, commence the process of converting a barren rock into a fruitful soil. Ascending to more complex vegetable forms,—to monocotyledonous and dicotyledonous plants,—we see in every herb, and bush, and tree, its whole processes and functions rendered subservient to the production and perfecting of the seed; and this seed produced, too, in such abundance, and rendered, by its peculiar construction, so comparatively indestructible, that extinction, or eradication, is almost impossible. Antecedent probabilities, then, are fully answered here; while the diversity in the means by which the seed, or re-productive agent, is perfected, will clearly show that it is not by the operation of "some blind, unintelligent impulse, capable of acting upon one model only." With examples of a few of these I will close this chapter.

146. In cryptogamic plants, whose sporules are so small as often to be invisible to the naked eye, the process of fructification has never been distinctly traced; but in all cases of phanerogamic plants the due perfecting of the seed is only insured by the proper application of the pollen, or dust of the flower, to the pistil. This, which must necessarily be done in the atmosphere, is accomplished in a variety of ways.

In most cases, the pollen and the pistil are borne by the same flower, and the agency of winds, of elasticity, and of irritability, is called into operation to secure the object designed. In some instances, as in the hazel, the pollen is in one set of flowers and the pistil in another. In these cases, the winds are the medium of conveying fructification to what is called the female flower—the leaves not appearing until after the flowers, in order that they may not interfere with the process. In willows, the stamen-bearing and pistil-bearing flowers are on separate trees, which grow adjacently, and the wind wafts the powder from the one to the other. Aquatic plants of the phanerogamic class have their roots, and some even their leaves, under water; but all, like the *arum*, or water-lily, project their *flowers* into the air till the impregnation of the seed is accomplished. Thus the *utricularia*, or bladder-wort, by means of air-bladders with which it is furnished, rises into the atmosphere in flowering time, and when the seed has become perfected sinks again, and deposits them in the mud. Thus too, in case of the *vallisneria spiralis*, an aquatic plant which grows in the South of Europe, the stamen-bearing plant, at a certain period, is detached from the subaqueous soil, and rises to the surface of the water, where it floats alone, ripening its pollen, till the pistil-bearing plant sends up a long spiral stalk, which bears the flower to the surface, where it expands, and receives the pollen wafted by the wind. Thus the seed becomes perfected, and finally deposited in the mud. Besides these natural contrivances of different parts of vegetation to aid each other, another class of contrivances also may be seen, which point out the mutual adaptations of the animal and vegetable worlds. Insects are often the unconscious instruments of conveying impregnation to the flowers upon the juices of whose petals they are feeding. In some instances, especially in orchids, it is not too much to say they were evidently *designed* to be so. I give an example in the birthwort (*aristolochia*). The flower consists of a long tube, in a chamber at the bottom of which the stamens and pistil are placed, completely shut out from the agency of winds, and containing no provision in itself for the scattering of the pollen. This plant is frequented, however, in its *native* country, by an insect

which enters the tube easily, and gets into its little chamber. On attempting to get out, it is prevented by a series of hairs in the tube, which all point downwards. In its struggle for freedom from this little cavity it distributes the pollen upon the pistil; soon after which the flower withers, and the unconscious instrument of fructification makes its escape.

147. Thus, then, the continued re-production of all vegetable forms is unfailingly provided for; and such are a few of the varied and *arbitrary* contrivances by which such provision is made. In the care thus exercised over the re-productive process of vegetation antecedent probabilities are more than realized, while the varied means by which the process is accomplished, are a clear and irrefragable testimony to the exercise of *contrivance* and of *will*.

148. And now, in our few discursive glances at the vegetable creation,—few and discursive, because the subject has been so exhausted by the giants of a preceding age,—what evidences have we found lacking, which could have been exhibited, of a wise and benevolent Creator? In the elementary substances of which the material Universe is formed, in the combination of those elements, and their distribution when combined, at once in inorganic and organized structures, we have seen adaptations to innumerable, varied, and complicated ends—adaptations so perfect and complete, that they could not have been more so, *if* the ends *had been* objects contemplated by unerring Intelligence. And what have we beheld which should bid us refuse to entertain that most natural conception, and cast from our thoughts, as an invalid inference, the idea of a God? No flaw has been discovered in the evidence which the Universe affords; no opposite testimony which would furnish a clue to the discovery of a different creator; or lead rationally to the conclusion, that any of the forms it exhibits are the unfinished productions of chance, or thrown, orphan-like, upon the shores of cosmos, by the wild surging of chaos's uncontrollable waves! The vegetable forms which beautify the earth, and the broad margin of the “blue lone sea,”—these give no echo to the Atheist's voice, nor clothe his naked dream with living force. They supply, as though such was the one end of their existence, the wants and the appetites of animated

things, whose joy exuberant—the joy of life—bursts forth in vocal accents, praising the God that gave them. He forms and He renews. The rain and dews are His precious gift ; the sunshine is His smile, beneath whose beams all nature laughs rejoicing, and attunes to Him her undying anthem. Man may refuse to join his voice with hers, or may, perversely, wake a jarring note ; but all things else, in earth, in air, in ocean, to their Creator God send up unceasing songs of thankful praise !

CHAPTER VI.

ORGANIC NATURE, AS EXEMPLIFYING THE POWER, WISDOM, AND GOODNESS OF DEITY, CONTINUED—A GLANCE AT THE VARIOUS ORDERS OF THE ANIMAL CREATION : THEIR ADAPTATION TO THEIR DIFFERENT SPHERES OF BEING—MICROSCOPIC ANIMALS : THEIR WONDERFUL CONSTRUCTION AND USE IN THE ANIMAL ECONOMY—SOME GENERAL EXAMPLES FROM HIGHER ORDERS OF CREATURES—THE MECHANICAL CONSTRUCTION OF THE BODY—THE DENTAL APPARATUS—THE REGULATION OF FLUIDS—INVOLUNTARY MUSCULAR ACTION—PROSPECTIVE CONTRIVANCES—CONCLUSION.

149. ANIMAL, like vegetable, structures, commence with a simple cell. In the *Monad animalcule*, that cell constitutes the whole living being. By the aid of a microscope, magnifying from 300 to 400 times in linear dimensions, these little creatures (500,000,000 of which could exist in one drop of water) may be distinctly seen. Each forms one oval or spherical transparent cell, containing granules, or little specks of some coloured matter. Their re-production is accomplished by each individual dividing into two, three, or four portions. When this process is about to take place, the granules within the integument, or case, seem to be divided by a transverse line ;

this gradually becomes more apparent, and at length the containing case itself contracts along the course of this line; and the monad appears double, treble, or quadruple. The parts have now an impulse to separate; and an entire division soon takes place. All become perfect individuals, and swim off in opposite directions.*

150. In the same class (INFUSORIA) there are animalcules much more complicated in their structure. The *Rotifer*, mentioned in previous pages,† though only about one-fourth of a line in length, is highly organized, having a mouth, a stomach, an intestine, nerves, respiratory organs, and a tail; while the neck, examined through a powerful microscope, appears to be furnished with eyes, and bears in front a curious organ, whose denticulated edges vibrate in succession, giving the whole member the aspect of a revolving wheel. Another genus, the *Proteus*, possess the wonderful property of continually changing their shape, seldom continuing in the same for two moments together; while a fourth, the *Brachionus*, possess a durable case or shell, chiefly of siliceous materials, which leaves a memorial of their existence ages after they have passed away, in calcareous earth, bog-iron, and Tripoli, or polishing slate.

151. The next class of animals above the Infusoria is the ZOOPHYTA, or RADIATA, a sort of animal-plants, whose radiated organs bear a resemblance to the petals of flowers. The *polypi*, to whose amazing power, exerted in combination, the construction of coral reefs, and perhaps the chief calcareous strata of the world, bear witness—the *Spongia*, whose vitality is so low that they were long ranked among vegetables—and the *Actinia*, or sea anemone, of which most of our coasts supply such beautiful specimens, belong to this class. The latter use their tentacula as feet, to impel themselves along when shift-

* See Mantell's "Invisible World revealed by the Microscope." Also, Ehrenberg's "*Die Infusionsthierchen*."

† See Chapter II., and note to Chapter V. It may be further added, that the Rotifer is oviparous; and eggs, in progressive stages of development, may generally be seen within the body. Their increase is in a ratio almost incredible. Ehrenberg discovered, by direct observation, that from a single individual a million may be produced by the tenth day; and so on in proportion.

ing their position; and when they fix themselves upon some rocky base, spread them out like the petals of a double flower, which close upon the prey that comes within their grasp.

152. The *ARTICULATA* compose the next division of the animal kingdom, comprising a wide range of beings, differing vastly in detail, but marked with the distinguishing characteristic of articulation. It is divided into the several classes of *Insects*, *Arachnides*, *Crustacea*, and *Annulata*. The world of *Insects* and *Arachnides* has too numerous a body of members to admit of even a glance at its details here. It exhibits, however, a remarkable advance on the orders mentioned above, in the power of instinct, of which some of its class present the most remarkable examples in nature. The *Crustacea* are usually encased in a solid calcareous skin, perforated by openings, through which they receive and exhale air; and do not generally attain maturity till this envelope has been several times cast. They are mostly carnivorous, and their habits and conditions aquatic. The *Annulata* complete the articulated orders. They have red blood, being the only invertebrated animals which are furnished with it. Their bodies, from one extremity to the other, are covered with a series of rings (their organs of locomotion), in all respects perfectly similar, except that the head, formed by the anterior ring, is the chief seat of the senses. Cuvier divides them into three orders—the *Tubicola*, which inhabit tubes; the *Dorsibranchiata*, whose vessels, occupying the centre of their bodies, are somewhat ramified; and the *Abranchiata*, which, having no visible organs of respiration, are supposed to breathe through the skin.

153. The *MOLLUSCA* are classed next to the *Articulata*. They have neither an articulated skeleton nor a vertebrated canal. They are bilateral, having a duality of corresponding parts. Some of them, the “*naked*,” are enveloped in a very sensitive skin; while in others, the “*testaceous*,” it becomes indurated into a shell, incrusting the whole animal. These creatures generally have no organs of sight; but the *cephalopoda*, which form the first group, have both eyes and ears adapted to their peculiar condition, and protected from all the injurious influences to which they would otherwise be exposed.

154. The remainder of the animal kingdom is usually grouped

in the one section of VERTEBRATA, divided again into the *oviparous* and *viviparous*. The *oviparous* classes include fishes, reptiles, and birds, whose adaptation to their various spheres of existence are usually marked and conspicuous. The *viviparous* class, or mammalia, are those which give birth to a living progeny, and supply their earliest nourishment from the breast. In this class man is usually included.*

155. Of these various orders of creatures, the distinct species of mammalia are upwards of a thousand, some of them extending into almost numberless varieties. Of birds, there are six thousand species more. The MOLLUSCA, ARTICULATA, and radiated and vertebrated inhabitants of the deep, are in their species vastly more numerous still: while the INFUSORIA, though not divisible into so many distinct sections, exist in numbers surpassing the utmost stretch of man's most fertile imaginings. And all these various and multitudinous series of living creatures—life, as it were, within life, worlds within worlds—are existing in the same air or water, and basking in the same solar light; while each, in its own peculiar body, suited exactly to its instincts and appetites, partakes of the same exuberant enjoyment as though the glowing sun, and the vital air, or the sustaining flood, were created solely for its use and pleasure. The necessities of all things are equally provided for by a beneficent Creator, by the adaptation of each to other. "The properties peculiar to each plant are but

* Natural History, in its two great departments of Botany and Zoology, was doubtless among the earliest of human studies. Yet, for nearly 5000 years, man's attempts at classification appear to have been vain ones, so *gradually* did the light break in upon him. It was not until the early part of the present century that anything like a correct classification was accomplished. And now that the labours of such men as De Candolle and Lindley in the one department, and Cuvier and Owen in the other, have produced a system in which the mind can recognize something like order, the researches of Geologists have confirmed their classification, by showing it to be in almost literal accordance with the order of *creation*. Well does the late Hugh Miller, in his "*Testimony of the Rocks*," (Lecture I.,) demand of the Pantheist "how—seeing that only *persons* (such as the Cuviers and Lindleys) could have wrought out for themselves the real arrangement of this scheme,—how, or on what principle, it is to be held that it was a scheme originated and established at the beginning, not by a *personal*, but by an *impersonal* God."

adaptations to creatures that can enjoy them. The scent, the form, the colour of every flower and every leaf, and probably also of the very particles of earth that may be scattered by the wind, and even the various sands washed by the boundless sea, are all in keeping with the senses, and the appetites, and the habits, of different living beings. From the Mammoth to the Mite, from the Iguanodon to the minutest Animalcule, the hand of the Almighty has equally provided for every want.”*

156. The conscious enjoyment of some of these races, as the sponges, polypifera, and jelly-fish, can indeed be but small. Yet, feeble as their sensations must be, their whole life is one of gratification, as far as they are capable of feeling. The absorption of food, and the re-production of their species, is their chief employment. For this their powers are sufficiently developed, and in this they are continually exercised. The avidity with which that little polype, the fresh-water hydra, will seize upon its food when hungry, and, with a sort of electric shock, prevent it from escaping,† and the listlessness with which its long arms will allow the minute worms or insects on which it feeds to pass them when its appetite is sufficiently gratified, *may* not be an exhibition of choice, but proceed from involuntary muscular action. Yet the one is at least an exhibition of *unsatisfied*, the other of *satisfied*, desire: and whatever conscious feeling it possesses must thus flow forth. Two of our main elements of pleasure—hope and satisfaction—are in these actions, however feebly, seen in exercise; and exhibit, even in the lowest forms of life, the benevolence of their great Originator.

157. The peculiarities and yet constant perfection exhibited in the construction of animal frames, and their exact adaptation to their various spheres of being, have been so elaborately dwelt upon by Paley and others, as evidences of contrivance and design, that the repetition of the task would be superfluous. The Atheist of the present day, indeed, acknowledges the perfect adaptation, but denies the inference to be drawn from it. Finding it useless to argue against tangible facts, he seeks no longer to bring out instances of imperfection in the works of creation; but contents himself with the assertion, that “fitness in art

* Moore’s “Use of the Body in Relation to the Mind.”

† See Mantell’s “Invisible World,” Chapter 3.

argues design, in nature only law." * That adaptation, indeed, is patent to the most casual observer; since wherefore, for example, should the neck of a camel or giraffe have been elongated; or the elephant, whose short stiff neck will not bend, have been furnished with its useful trunk, except that all might reach their food? Or why, to take examples from lesser creatures, whose structure is not less wonderful, should the earwig's large wings have been made capable of being drawn up under such tiny scales; † or the *Nemestrina Longirostris* have been furnished with a proboscis several times the length of its own body, except that the former might protect its fragile and gossamer-like pinions from being injured, while it is pushing its way among the petals of flowers, and that the latter might be able to reach the juices of the long-tubed flower which forms its only food? ‡

158. The wonders revealed by the microscope being modern additions to our knowledge, have not yet, I believe, been formally adduced, as corroborating the truths of Natural Theology: yet few have any adequate idea of the exhibitions they afford of Creative skill and wisdom. In the gigantic denizens of tropical forests we can readily see and understand the adaptation of the organs of sense, and every particle of bone and muscle, to the objects they were intended to accomplish. But it is not so easy to conceive of beings as perfectly organized, and as perfectly symmetrical, whose whole length scarcely equals one-third the breadth of a line; or to trace the adaptation in the different parts of their minuter frames. And there are beings endowed with perfect organs of nutrition, locomotion, and re-production, a million of which would not exceed in bulk one grain of sand, eight millions of which might be comprised

* Atkinson's "Letters to Martineau." See further on this head, Chapter IX. of this Treatise.

† Whilst the wings of this creature are nearly half an inch long, the scales under which they lie concealed are not larger than the ninth part of an inch. These wings it has the power of drawing up by a number of joints and folds under this small covering, to protect them from being torn whilst it is in search of food.

‡ The proboscis of this little creature, which is a native of the Cape of Good Hope, is just long enough to reach the bottom of this tube.

in that of a grain of mustard seed ; yea, and, as already intimated, there are living creatures, though not so highly organized, five hundred millions of which may live in one drop of water ! Yet more ! The polishing slate, examined by and named after Ehrenberg, is formed of Infusoria, each of which when living was covered with a siliceous shell, and of these creatures about forty-one thousand millions are contained in a cubic inch : while of the animalcules composing the Raseneisen, or iron-clod, a cubic inch contains about a billion !

159. With the exact uses of these minute creatures in the animal economy, beyond that of providing food for higher races, we perhaps may never be fully made acquainted. A few inferences, however, respecting them are perfectly legitimate. The coral insect could not build up mountains of lime-stone ; nor could any multitudes of the Brachionus have formed chalk, slate, or bog-iron, by the deposit of their shells, if the substances of which they are composed had not previously existed in solution in the water. We know not, then, how needful such an agency may be to purify the waters, which, percolating through the earth in their return to the ocean, bear with them solutions of many minerals in their course ! And these little creatures withdraw from them, not grains, which would sink by their own gravity (for these would be immensely larger than their own bodies), but particles so small as to escape our observation, even when pushing our investigations with microscopic aid.

160. But although the waters are furnished most abundantly with these infinitesimal marvels, because there it appears their labours are most needed, yet things nearly as astonishing in their minuteness are to be met with among the denizens of earth and air. One hundred yards of raw silk weigh less than a grain ; and a three-hundredth of a yard, or a three-thousandth of a grain, can be handled and examined with the naked eye. Yet the thread of the common spider is much finer than that of the silk-worm ; and there are spiders, one thousand of which would not make up the bulk of a common one. Their threads are invisible, except when reflecting the solar light ; and yet it is found by the microscope that every spider has about four thousand spinnerets, each producing a separate thread, all of which are united in one cord, to make up the

gossamer thread. Such is the infinitesimal exactness, as well as gigantic power, displayed in the wonders of animated nature.

161. If we were to examine a huge steam engine of four-hundred-horse power, and saw all its parts adjusted, and its joints exactly fitted ; and especially if we saw it at work, urging on a mass of complicated machinery by its impulsive strokes, we should come at once to the conclusion, that contrivance and design, as well as nice mechanical skill, were displayed by its inventor and artificer. If we had submitted to our examination another engine, with its parts as nicely adjusted, and its joints as exactly fitted, whose whole bulk would not exceed that of a grain of mustard seed, our admiration of the mechanical skill of the constructor would be greatly increased by the diminutiveness of the object. And if we could further have exhibited to us that engine at work, and accomplishing the same objects in another sphere which the four-hundred-horse engine does in the one it was formed to occupy, our admiration of the contrivance and design it exhibited would only be proportionately enhanced. Why, then, should not infusorial creatures be considered just as stupendous displays of the power, wisdom, and goodness of the world's Creator ? When the telescope first disclosed something of the magnitude of the Universe, man dreamed that the earth was too diminutive an object to share in the providential regards of an Almighty One. But the microscope bears its testimony that this little planet—this speck in wide immensity—is as immensity itself, compared with organized beings, whose habits, instincts, and enjoyments, are constantly provided for. Why, then, should the perversity of the human intellect take now a contrary direction, still wandering from its Maker, and draw the same conclusion from minuteness as from vastness—deeming such infinitesimal wonders the production of unintelligent nature ?

162. Nearly every separate portion of the animal frame has, at one time or other, been adduced as evidence of benevolent contrivance and design. Yet there are some parts which have been less pressed into the service than others : and there are a few facts connected therewith which have never, I believe, been called upon for their testimony, though manifesting, in an eminent degree, the wisdom and benevolence of the Creator. In

turning now to this branch of the subject, I shall endeavour chiefly to make use of these; and to bring forward as much novelty as possible, where little can be said to be entirely new.

163. It has been beautifully noted by Bell, that "there is much to admire in the machinery of the animal frame, before the powers of life are measured out to it." * How remarkable (as exemplified) are the force of the heart to propel the blood—the resistance of the tubes to the circulating fluid—the proportioning of the strength of the limbs to the weight of the body—and the power of the muscles to the length of the bones, as levers. How remarkable, too, are the flexibility of the joints—the firmness of the bones to resist pressure or weight—and their elasticity to prevent concussion and fracture. How firmly balanced are the active and resisting powers; no accident ever resulting from their disproportion. How perfectly constructed are the organs of the senses, of which the eye forms so prominent an example! That organ is formed upon optical laws such as man, in his works, acts upon, but in a far less perfect manner. In obedience to physical laws, the eye requires a mechanism for its adjustment, by which it can adjust itself to different distances. In our optical instruments, we require stops to regulate the admission of light; and here the same result is obtained by a similar contrivance. But "when we compare our artificial stops with the iris, or curtain of the eye, we only compare imperfection with perfection—man's work with God's." † The iris contracts and dilates without any apparent effort, to adapt itself to the most minute variations in the amount of light, whilst our instruments can only *approach*, without *attaining*, a similar perfection. And what are all these adaptations, but evidences of an intelligent Contriver and Designer?

164. One chief end of existence is the same in animals as vegetables—the maintenance of their own fabric by the assimilation of matter from without. For this purpose, as we have already seen, plants are provided with suitable organs; and from the soil they are rooted in, and the air which surrounds them, obtain their continual supplies. In animals, this object has to be accomplished in a different way. It is necessary to

* "Bridgewater Treatise," p. 289. † Smee's "Instinct and Reason."

their organization that they should possess a cavity to hold the needful food, and a mechanical and chemical apparatus capable of reducing that food into a fluid state, and thus preparing it for absorption. In the lower animals, this process of absorption is nearly the same as that of plants; the main difference in the whole system being, that in the animal the secretions and excretions are carried outside the body;* and in the case of plants, most of them are deposited within it. Some animals, too, are so inert as to bear a further resemblance to plants—applying nearly all the foreign matter thus absorbed to the increase of their own substance. Most animals, however, essentially differ in this respect from the vegetable creation. They *require* a much larger supply of nourishment, and cannot live in the absence of it, because the greater portion of that which they receive goes to repair their constantly recurring waste of substance. Each movement causes a loss of muscular fibre; and every breath that is drawn (in that process of combustion, by which the heat of the body is kept up, and a large quantity of carbon and hydrogen is carried off in the form of carbonic acid and water) consumes a portion either of the organized structure, or of the nutriment newly received. To repair this waste, as well as to increase the bodily structure until fully grown, an apparatus, such as I have mentioned above, is absolutely necessary for the maintenance of life: and the mechanical portion of the apparatus adapted for this purpose, is the first particular example I shall offer.

165. So adapted are the teeth of the various classes of animals to the nature of the aliment on which they are destined to feed, and in so unvarying a manner is such adaptation exhibited, that a clever Anatomist could usually determine, by an inspection of them, what was the nature of the animal to which they belonged, and what its general structure and habits. Thus, animals feeding, in a great measure, on the kernels of shell fruit, as the squirrel does, have gnawing teeth, enamelled only at the front surface, which, being the hardest, constantly maintains a sharp edge. Frugivorous animals, feeding upon

* This may be a difference only in degree, for plants have excretions which are carried *without*, and which, though nourishing to other plants, are detrimental to those of the same species.—See Lindley's "Botany," article "Roots."

soft fruits, have teeth merely raised with rounded elevations. Carnivorous animals have molar teeth, so compressed as to form cutting edges, which work upon each other, like the blades of a pair of scissors. Insectivorous creatures have teeth raised into conical points, which lock into corresponding impressions in the teeth of the opposite jaw. And herbivorous animals, for whose food a more complete mastication is requisite to render it digestible, have teeth terminated by large, flat, roughened surfaces, which roughened surfaces form a complete grinding apparatus, and are constantly maintained by a hard enamel, arranged in upright plates, and standing higher than the softer substances that fill up the interstices. It is, further, a fact worthy of notice, that all the animals which possess these grinding teeth, and feed on harder vegetable substances, have the lower jaw so constructed, that they can move it from side to side, and thus perfectly masticate their food.* Nor is it less remarkable, that the young of all mammalia, who in the first period of their life are suckled by their mother, have no teeth developed until after their birth, or, indeed, until they are capable of preparing and digesting their own food. There is an adaptation here throughout, which manifests most clearly contrivance and design—a knowledge of the end to be obtained, and the use of means so suited to this end, as nothing but the highest order of Intelligence could have chosen.

166. Another example, well worthy of note, is the regulation of the quantity of fluid in the animal frame. The kidneys form a kind of regulating valve, by which the quantity of water in the system is kept at its proper amount. The exhalation from the skin—the other principal means by which this is effected—greatly varies with the temperature of the air around. The variation in that temperature entirely prevents the skin from being, by itself, a sufficient regulator. When it is low, the quantity of moisture thus exhaled is diminished; when high, it is increased. From hence arises the necessity for some other

* In herbivorous and granivorous birds, the absence of teeth is supplied by the peculiar construction of the gizzard, or second stomach—a muscular organ, which they are taught by instinct to supply with small stones. This organ, by its grinding action, crushes their food; its contractile force being so great, that it is estimated in the common fowl to amount to the pressure of half a ton.

mode of adjusting the quantity of fluid in the blood-vessels, which would otherwise be liable to constant and injurious variations. That mode is found in the kidneys. They serve the purpose of flood-gates; and allow such a quantity of moisture to pass off into the urinary tubes, as to keep the pressure within the vessels very nearly at a uniform standard. Here, too, we have an instance of benevolent adaptation, such as none but an intelligent Contriver and Designer could have introduced.

167. The skin of animals, especially of the human frame, and the outer covering, or cuticle, by which it is protected, present to us other illustrations of intelligent and benevolent adaptation. The skin is the peculiar organ of touch—sensitive in the highest degree. Its keen sensibility gives immediate warning in case of danger, and causes the muscles to contract and cover the blood-vessels in the part where the danger lies. The same keen sensibility, too, gives us warning of other dangers, by the attacks of pain. The bones, membranes, and ligaments, might be cut, pricked, or burned, without exciting pain, were they not covered by this sensitive membrane. Indeed, in paralytic cases, in consequence of this peculiar attribute of the skin being destroyed, persons have been seriously burned without being conscious of the injury. Had the whole body been as sensitive as its covering, the internal parts would have possessed a property which might have rendered even our most ordinary motions painful; while the delicate endowment would have been useless, as no dangers of which it would be capable of giving warning could have reached them, without first passing through the sensitive covering.

The sensibility of the skin, however, would be almost unendurably acute, were it not protected by the cuticle, or outer covering, by which the keenness of all its sensations is modified; though immediate warning of the approach of danger is not thereby prevented. We may judge, perhaps, what the skin would be without the cuticle, by the agony of a nursing mother whose nipples have lost their outer covering. And yet, though it forms so complete a protection to the skin, it does not in any way prevent its sensibility to touch. On the contrary, however thick the ends of the fingers may become,

through laborious employment, its communications with the nerves are still perfectly maintained. Nay, even through the nails and the teeth the impression to the nerves is adequately conveyed.

168. In the muscular portions of the frame, and especially in their involuntary and reflex action, we have perhaps even still more wonderful examples of wise and benevolent adaptation. The muscles consist of fibres, which lie parallel to each other. This fibrous or filamentous part has a living endowment—a power of relaxation and contraction—termed irritability. The number of fibres varies with the size of the tissue; but in every animal, large or minute, its power of relaxation and contraction is sufficient for the ends to be accomplished. Lyonnnet reckons four thousand and sixty-one muscles in the willow caterpillar; each ring having its three sets of muscles, direct and oblique, traversing and interweaving, but yet distinct and symmetrical. In man, a single muscle is formed of some millions of fibres combined together, each having the same point of attachment or origin, and concentrating in a rope or tendon. Yet the number of muscles in the frame amounts to hundreds, and each one, yea, every fibre of the unnumbered millions that compose them, must act consensually in almost every movement of the body; or its equilibrium, in maintaining the centre of gravity, would be lost.

169. The beautiful harmony exhibited in the relaxation and contraction of the muscles, and their extraordinary power, are admirably dilated on by Sir Charles Bell, in his *Treatise on the Hand*;* but there is another class of their functions more recently discovered, and more usually denominated sympathetic and reflex actions, which I conceive to be still more wonderful, as exhibiting an intelligent and beneficent Creator.

170. Animal actions may be divided into three classes,—intelligent, instinctive, and involuntary; which last consist of sympathetic and reflex ones. In man, and some of the higher races of animals, all three are exhibited; in the lower races, the last two only. Intelligent action proceeds from a voluntary exercise of the will. Instinctive action is dependent on sensation alone. Reflex and sympathetic action differ essentially

* Pages 134, 135.

from both, inasmuch as they are entirely involuntary, and independent at once of sensation and the will. If we find, then, those actions upon the integrity of which the continuance of life depends placed among the involuntary class, with which neither the will nor sensation can interfere, we shall see, undoubtedly, another exhibition of the work of a benevolent and intelligent Creator. Into these let us inquire.

171. The circulation of "the blood, which is the life" of the animal, depends mainly upon the agency of a contractile organ—the heart; and its action is so far involuntary, that it is guided by neither sensation nor the will. The muscular coat of the intestinal canal too, by sympathetic action, contracts almost immediately after it has expanded; and thus, by a peristaltic motion, propels the contents of the intestinal tube throughout its winding course from one extremity to the other. With these two primary actions of life the will of the animal cannot directly interfere.

172. There are, however, reflex actions, of which the senses can take fuller cognizance, and of which the wisdom is consequently more patent to the mind. One of these is the act of swallowing. When the food has been carried back beneath the arch of the palate into the pharynx, it is laid hold of by the muscles of the pharynx, and is then carried down the throat involuntarily. A feather, with which the throat is tickled to produce vomiting, will, if introduced too far, be thus grasped and swallowed. It is the contact of something, fluid or liquid—even though it be saliva—with the membrane which lines the pharynx, that produces the reflex muscular movement. The nervous system is the producing cause; for if the nerves supplying the part be divided, the action will not take place. Yet it does not depend upon the brain; for it may be performed after the brain has been removed, or when its power has been destroyed by a blow. It is caused by the conveyance to the top of the spinal cord of the impression made on the lining of the pharynx. This impression, conveyed through one set of nerves, excites in the spinal cord a motal power, which, being transmitted through another set of nerves, calls the muscles into action.*

* See Carpenter's "Animal Physiology," pp. 158, 159, of Orr's edit.

173. Again. The entrance from the pharynx into the larynx consists of a narrow slit, which is capable of being enlarged or closed by the contraction of the muscles. These muscles are made to act by a process corresponding with that of deglutition; and the purpose of this is to prevent the entrance of anything injurious into the windpipe. The contact of liquids, or solids, usually induces the closure of the glottis, which forms the walls of this chink, by the fall of the epiglottis, so that they are prevented from finding their way into the windpipe. Should it so happen that a particle of food, or a drop of liquid, passes down the glottis, in consequence of breath being drawn at the time of swallowing, it at once excites a violent fit of coughing, which drives up the particle, and prevents it from finding its way into the lower part of the windpipe. Moreover, the glottis, while always open for the reception of atmospheric air, exercises, quite independently of the will, this power of closing itself to prevent the entrance of the destructive poison—should we attempt to breathe carbonic acid, or other deleterious gases, which would prove fatal to life if introduced into the lungs.

174. I adduce one more example. In order that the blood may retain its fitness for the purposes to which it is destined, the products of decomposition, ever going on in various parts of the body, must necessarily be drawn off from the current of the circulation as constantly as they are received into it. This is accomplished by the various processes of secretion which are continually taking place, and the stoppage of which would be the extinction of life.

175. One of the most important of these withdrawing operations is respiration, which has the effect of setting free from the blood carbon, in its gaseous form, and introducing oxygen therein, for the various important actions to which it is subservient, especially for the maintenance of animal heat. The effects of a brief suspension of respiration in a warm-blooded animal are speedily fatal; and are *as* fatal in the case of cold-blooded animals, though a longer time is required to produce the same result. Yet respiration really belongs to the class of reflex or involuntary actions—a great number of muscles being called into play simultaneously by the stimulus which is sent to

them from the spinal cord. Nerves, originating in the lungs, convey to the spinal cord the impression produced by the presence of venous blood in their capillaries, or minute tubular vessels; and so strong is this impression, that the *will* is unable *long* to resist the act of inhalation.

176. Thus we see that all the great avenues of life—the act of respiration, the act of swallowing, and the circulation of the blood—are guarded, not by the erring will of the animal itself, but by a surer, truer, and more watchful sentinel, which, though itself unintelligent, is the representative of an intelligent and benevolent Creator. For it is impossible to conceive of any unintelligent cause making a provision, so fraught with wisdom and goodness, against the erring will of the creature who is himself the subject of that provision.

177. And now, even if it were possible to conceive, on the “development” principle, that these various adaptations were the product of necessities which induced and called them forth,—a conception to which reason gives its decided negative,—there is another class of contrivances and adaptations which cannot have been thus produced: I mean prospective ones. Each animal comes into the world provided with everything necessary for its preservation and *future* enjoyment. Its eyes were not needed in the ovum or the matrix; no necessity could induce their development there: yet there they are formed, and fully perfected for *future* adaptation to the light. Its lungs were not needed in its embryo prison-house: yet there its lungs are formed, and matured for breathing air when it becomes possessed of individual volition. Thus, too, its limbs, and other organs, though not then required, are formed adapted for *future* use, and, therefore, not called forth by the blind necessities of the case before the period of its enlarged activity. Thus, also, the human child, and the young of most mammals, come into the world furnished with a perfect set of teeth, which, instead of being wanted, might have proved a serious inconvenience at the time,—because, by a prospective contrivance, the breasts, or the teats, of the mother are furnished with milk for their sustenance,—but that those teeth are concealed beneath gums adapted for suction, until the supply of milk has ordinarily diminished, and the advancing creature’s

necessities demand food of a stronger kind, and such as requires the process of mastication. These prospective contrivances must naturally be viewed as evidences, not only of intelligence, but also of benevolent forethought.

178. What then must we consider to be the testimony of the facts thus gleaned from the field of organic nature—a field which has been so often reaped before? Speak they of a presiding Intelligence, all-powerful, wise, and good? or of the strange jumbings of chance, and the incoherent freaks of fortuity? If it be possible to conceive of unintelligent nature making efforts towards creation, those efforts must of necessity be broken and disjointed. However aided by fortuitous circumstances, many of them could not fail to be unsuccessful; and those which succeeded would usually be irrelative and unconnected as regards each other. Unity and simplicity bespeak a presiding Intelligence, having one object in view, to which all streams converge, for whose accomplishment all secondary causes concur, and in which all actings and efforts are found to unite and harmonize. And what do we behold in the Visible Creation? Earth's landscapes may show us signs of volcanic upheavings and strange convulsions, which have seemed to rend the framework of our globe with ruthless power; but even these, when closely examined, appear to have been necessary to subserve some purposes of utility and benevolence. In the great design of giving life and enjoyment, and providing for their uninterrupted continuance, in the great whole which we behold around us, all is harmony and completeness. There are no rents, no fissures, no gaps to fill up, no evidences of the throes of nature striving after some monstrous birth, or reaching after some unknown object. The joints are all fitted; the adaptations are *mutual* and *universal*. EACH INDIVIDUAL THING AND CREATURE is just as perfectly suited to its own peculiar sphere and purpose, as though it had been *first* created, and all other things in the Universe had been afterwards adapted to its prior existence. Each new and successive creation which Geology has revealed, formed an harmonious part of the great whole; and found everything *preadapted* to its being, as intimately as that sexual relation by which one entire creature becomes the complement of another.

There is no exception to this range of adaptation ; no indication in any quarter of our having entered into the sphere of another and a different creative energy. Wherever we turn our inquiring gaze,

“Shade unperceived so softening into shade,
And all so forming one harmonious whole,”

meets us above, beneath, beyond, around, that not a link is wanting in the chain which binds, unites, and re-produces all, from atom to mountain, from microscopic moss to banyan-tree, from monad up to man.

CHAPTER VII.

MENTAL PHENOMENA ; OR, INSTINCT AND REASON, AS MANIFESTED IN INFERIOR CREATURES, AND IN MAN ; WITH SOME OF OUR IMPULSES, PASSIONS, AND INTELLECTUAL FACULTIES, AS EXHIBITING THE WISDOM, POWER, AND GOODNESS OF GOD.

179. WE have seen in certain facts connected with the physical principles of the Universe, and especially in the facts and phenomena of organic nature, brief as was the space we could allot to the examination, incontestable evidences of Creative wisdom, power, and goodness. I now proceed to seek for similar evidences in the Mental Phenomena of organic life, in the Instincts of animals, and the Impulses and Passions of the human creature ; as well as the Reasoning Faculties and Motive Will by which those passions are, or ought to be, directed and controlled.

180. To the observant mind, there are few things more delightful or interesting than to watch the insect tribes in their various avocations. Their regular and constant employment, except during the necessary alternations of torpidity or repose ; the untiring energy with which they pursue the task that seems to be allotted to them ; and the unfailing happiness they

evinced in its performance, are among the first facts which we discover. But penetrating deeper, we see a something so closely approximating to design in their labours, that an intenser interest is soon awakened. Not only is this evidence of design patent to our senses in *their* adaptation to external things, and the adaptation of external things to *their peculiar organization*; but, as though perfection in this respect were itself an inherent, a primordial principle of nature, nearly every act of their volition APPEARS, at first sight, to be a result of some inductive process of thought, a deliberate choice of that which is most conducive to the end desired, after observation has been exercised, and reason employed, in weighing the circumstances of the case.

181. Well might the Infidel* who gave his moral lessons in the numbers of Windsor's bard, exclaim—

“ Who taught the natives of the field and wood
To shun their poison, and to choose their food ? ”

for nothing, save a knowledge not their own, could guide them in its selection: though the choice of proper nourishment is only one of many modes in which the perfect teaching of those Instincts implanted in the organization of animal creatures is displayed. From the moment of its birth to the moment of its death, the unreasoning being, in a state of nature, is employed in carrying out the one chain of ideas born with it; and in that employment finds its happiness, its exuberant joy. For though the higher orders of creatures may feel some touches of distress, yet mere Instinct cannot choose or be disappointed. Its every movement is a gratified impulse. Nearly every act of its life, too, though, according to Paley's definition, “ prior to experience and independent of instruction,” is such as conscious intelligence might justly have directed; the few that diverge therefrom being chiefly induced by the arbitrary interferences of human will and power. It pursues just such a course as Reason would have suggested, and experience have confirmed; but in that course exhibits the results of a skill and a knowledge which experience never could have imparted, because they are exhibited before experience could have come

* Bolingbroke.

to its aid ; and, usually, ere it could be made available, they "die and leave no sign."

Thus, then, as directed by a wisdom which is not in their own possession, they teach us to look to another Being as the Imparter of their Instincts, the Director of their impulses, the Controller of their actions ; while their unfailing happiness in pursuing these employments, forces us to connect the principle of active benevolence with these outward displays of wisdom and of power.

182. The bee builds its honeycomb in the exact manner which the most perfect acquaintance with mathematical and mechanical science would have taught it. Indeed the calculations of one of the most accurate Mathematicians were corrected by that creature's workmanship. In order to combine the greatest strength with the least expenditure of material, the angles formed by the edges of hexagonal planes must have a certain regular amount. Marandi found by measurement that those formed by the bees were, for one, 109 degrees 28 minutes, and for the other, 70 degrees 32 minutes. By the intricate calculations of Koenig, it seemed to be ascertained that the proper angles should be 109 degrees 26 minutes, and 70 degrees 34 minutes. This was an approximation that might well be esteemed a marvel, the discrepancy being only the 10,800th part of the circle. But Lord Brougham, dissatisfied with even this discrepancy, showed, by a fresh calculation, that, owing to the neglect of certain small quantities, the result formerly obtained was erroneous to the exact amount of two minutes ; so that the bees proved to be right, and the Mathematician wrong. Yet the bee has no knowledge of the principles upon which it acts. The wisdom that directs it is not its own. It does not *choose* between different modes of action and different styles of building ; for every individual bee builds exactly in the same manner. It carries out the blind, impulsive, but unerring principles which were implanted in it at its birth, and in obeying that impulse finds unceasing delight.

183. The wasp, in the composition of its paper, pasteboard, or papier mâché, appears to possess an acquaintance with the principles of matter, as evinced in the selection of materials for its purpose. Yet, in no other way does it exhibit this

knowledge; for each wasp makes its paper the same—thus carrying out an impulse implanted in its organization, in the pursuit of which it also finds its happy employment.

184. The symmetry and beauty of the bird's-nest furnish another remarkable instance of animal Instinct: and numerous as beautiful are the shapes which the homes of the feathered race display. Yet, in the construction of those elegant dwellings, in all their various styles of architecture, birds exhibit no wisdom of their own. They are rather the builders than the architect. They do not choose between different ideas of beauty and utility; but each species carries out one plan—builds upon one model—the one implanted in its organization, which is in each case perfect and unique—superior to what man could construct with the same materials.

185. The white ant of Africa adopts a scheme of life and government far superior to most of the governmental institutions of mankind. These little architects, as though aware how much can be accomplished by combined effort, unite in their exertions to rear their dwelling to the height of twelve feet from the ground. This towering fabric is traversed by numerous tiers of galleries, communicating with chambers and recesses, the abodes for life of a busy and ingenious community. While the queen ant lives royally, though a perpetual prisoner, attended by courtiers, and surrounded by a guard of honour, restless artificers are engaged in tunnelling roads, and labourers bring in provisions, and distribute them to the consumers. Yet the white ant does not, like a rational creature, choose between different forms of government. With laws more stable and undeviating than those of the Medes and Persians, its regal communism is always the same—the result of Instincts impressed upon its organization, on which it can make no improvement, and from which it cannot deviate.

186. The beaver, likewise, when its building season arrives, unites with its fellows in the construction of a dam across the chosen river, and of a number of adjacent habitations; carrying on its operations in the exact manner in which the highest intelligence would have directed. Yet the beaver will exhibit its building Instinct even in captivity, and in circumstances in which its labour could be of no possible use; thus showing that

its operations are directed by a blind Instinct, inspired by an Intelligence other than its own. A curious instance of this is related by Dr Carpenter. One, half-domesticated, in the possession of Mr Broderip, began to build as soon as it was let out of its cage, and materials placed in its way. Even when it was half-grown, it would drag along a large sweeping brush, or warming-pan, grasping the handle with its teeth, so that the load came over its shoulders, and would endeavour to lay this, with other materials, in the mode employed by the beaver when in a state of nature. "The long and large materials were always taken first: and two of the longest were generally laid crosswise, with one of the ends of each touching the wall, and the other ends projecting out into the room. The area formed by the cross brushes and the wall, he would fill up with hand-brushes, rush baskets, books, boots, sticks, cloths, dried turf, or anything portable. As the work grew high, he supported himself upon his tail, which propped him up admirably; and he would often, after laying on one of his building materials, sit up over against it, appearing to consider his work. This pause was sometimes followed by changing the position of the material, and sometimes it was left in its place. After he had piled up his materials in one part of the room, for he generally chose the same place, he proceeded to wall up the space between the feet of a chest of drawers, which stood at a little distance from it, high enough on its legs to make the bottom a roof for him, using for this purpose dried turf and sticks, which he laid very even, and filling up the interstices with bits of coal, hay, cloth, or anything he could pick up. This last place he seemed to appropriate for his dwelling; the former work seemed intended for a dam. When he had walled up the space between the feet of the chest of drawers, he proceeded to carry in sticks, cloths, hay, cotton, &c., and to make a nest; and when he had done, he would sit up under the drawers, and comb himself with his hind feet."

Now, respecting this case, which forms a clear example, it must be evident to every one, that if this beaver had been guided by its own wisdom, and acted with a design to accomplish certain ends, the same wisdom would direct it to leave its building operations unperformed, under circumstances in which they were wholly unrequired.

187. Thus rabbits and foxes burrow ; and every animal requiring one, prepares itself a home. Under a certain stimulus, they build, or excavate, always "acting upon a definite plan, which they did not originate, which they were not taught, but which they brought into the world with them." *

188. All the wisdom, then, which unreasoning animals exhibit,—and that wisdom is unquestionable, and, in its way, unerring,—are evidences of a wisdom above and beyond themselves, which at once implanted their Instincts, and gave them their existence.

189. Nor is it only in the choice of food, and the construction of their habitations, that the Instincts of animals are so beautifully displayed. These, indeed, are the main instances, because all revolve round one great centre—*life*—the preservation of their own life or continuation of their species. The bird, the wasp, the bee, the ant, and the beaver construct ; the fox and the rabbit excavate, not so much for their own convenience, as to provide a place wherein, with the greatest certainty of their coming to perfection, they may deposit their ova, their larvæ, or their young. It is in this—the carrying out of nature's design—their happiness consists. Yet it is evident they do not know the character of the work they are engaged in ; for experience could not have taught them. The butterfly, or moth, which deposits its eggs in the exact spot where the future grub will find its most suitable nourishment, cannot know that it will be found when they want it, where, most frequently, it does not exist at the time the germ is laid there : for the flesh-fly, deceived by its sense of smelling, will lay its eggs in the petals of the carrion flower, whose odour so closely resembles that of tainted meat. Birds, also, in sitting upon their eggs know not what the effect will be. However great their desire for progeny, they neither know from experience, nor have they been taught, that, by being sat upon for a certain number of days, a lump of white matter will become an image of themselves ; for often will they sit upon stones, or upon a nest which contains nothing, as though fully impressed with the importance of the proceeding. And yet are they endowed by Instinct with some impression which teaches them to provide for the *natural* result ; for a young

* Alfred Smee's "Instinct and Reason." p. 150.

hen of mine, which made her first nest, a stray one, under a heap of coals, when the eggs were discovered, and taken away during her absence, after she had sat upon them for a day or two, wandered about the coals calling the chickens, and seemed much disconcerted at their non-appearance.

190. Our domestic poultry, indeed, long as they have been under the tuition of man, will, to a close observer, exhibit, especially in early life, the stubbornness of natural Instinct. Accustomed in their wild state to roost upon the branches of trees, they usually seek the highest roosting place they can attain, even though a much more comfortable spot is provided for them below. I once provided for some half-grown chickens, from which the parent had been taken, a large tall box, in which were stowed hay and other warm materials for a nest. But when evening came, true to their soaring Instinct, they preferred roosting on the top of the box, exposed to the inclemencies of the atmosphere. Night after night I put them inside, yet they always went aloft again on the next night; and it was not till I rendered it impossible for them to mount, by covering the pen close to the top of the box, that I could induce them, even by a perch near its roof, to go inside. I once attempted to rear some chickens, three days old, with one six weeks old, which likewise had lost its mother; and was frequently amused by the pertinacity with which they sought, in a standing position, to obtain, under the wings of their little step-mother, whom they often lifted off her legs, the warmth and comfort they would naturally have obtained in that position from the breast and feathers of the parent hen. One of them lived till more than a month old, but no experience could eradicate this *standing* Instinct. Even though a hareskin was placed in the cage where the two slept, it would not lie down to obtain the warmth which it would naturally have received in a standing position from the parent hen. Under ordinary and natural circumstances, this course of action would appear to be directed by intelligence or experience; yet it is only an inborn Instinct. The wisdom is not the animal's own, or it would lead to a different line of conduct when circumstances make the demand.

191. Thus it is, too, with unreasoning creatures, in regard

to pairing, procreation, and every other Instinctive proceeding. They *appear* to exercise mental power and discrimination, but that mental power and discrimination are not their own; for, with regard to all alike, it may be asserted that education has not taught, and experience has not convinced. Their operations, then, give evidence on every hand that the power which organized them, implanted in each organization such ideas as were necessary for its being, its happiness, and the preservation of its tribe. Their mechanism, whatever they construct, is more perfect in its way than man's. Yet as far as the creatures themselves are concerned, it displays no power of contrivance and design. Perfect in itself for the purposes for which it was intended, and often surpassingly beautiful, it yet exhibits no acquaintance with the principles of symmetry or beauty in its constructor, because that constructor only blindly carries out one implanted idea. Each displays what *appears* to be mental power, in one particular manner only—each being only enabled to execute one design, though he executes that one with a perfection to which man cannot attain. Thus Instinct is “involuntary, and not governed by *will*. Its limits are fixed, and whatever may be the condition of the animal, it cannot travel out of them. From age to age, under every variety of circumstances, it preserves the same beaten track, and never either retrogrades or advances. It is an unerring guide, but it is a blind one.”*

192. Whence, then, the wisdom which, in all their Instinctive operations, unreasoning animals exhibit—a wisdom not their own? What principle of blind, unintelligent matter could thus have imparted a property which it never possessed, and have taught them to construct more perfectly than man, as though guided by a higher intelligence? One good and sufficient answer only can be given—they received it from God, their Creator. His is the *power* that imparts to them their life and energy; the *wisdom* that directs their proceedings and propensities; the *benevolence* that blesses and fills them with unceasing joy in the exercise of the Instincts which He gave. For these creatures, with their inherent Instincts,

* Fullom's “Marvels of Science,” p. 318.

are but the tools with which the great Creator works ; and display no less His contrivance and design, than if He had moulded the nest or honeycomb with His own plastic hand.

193. We may, with Archbishop Whately,* consider the main difference between Reason and Instinct to consist in the capacity with which those possessing the former are endowed—of making use of arbitrary signs, and employing language as an instrument of thought ; for though many of the lower animals have evidently a language of their own—intonations and gestures—by which they communicate with each other ; yet none, as he well shows, have the power of making such a use of language as to convey their thoughts by arbitrary signs, or alphabetic characters.

194. We may, on the other hand, consider, with Alfred Smee,† that the chief difference between the two principles consists in the power, conferred by Reason, of understanding and investigating the principles of matter, and forming out of it such tools and implements as are desirable or necessary for use. For all creatures, except man, as he shows, make use only of those instruments with which their Creator has endowed them, having no knowledge of the laws of matter ; while man, in all circumstances more or less acquainted with those laws, makes his own tools wherewith to perform his operations, and thus subjects matter to his sway. Mentally endowed to this extent, he sees, he imitates, reflects, improves, and by others' experience, as well as his own, obviates difficulties and surmounts impediments. He searches into the laws of nature, and makes her long-hidden principles subservient to his will.

195. Still, whichever of these views we take, or even if we choose any other, distinct from both, one fact is particularly evident—the undeviating *perfection* of INSTINCT as contrasted with the *imperfection* of REASON, and the necessity of education and experience to aid the latter in its development. And this fact will tend, not less, perhaps, than any other in the Universe, to establish the doctrine of Creative wisdom and goodness.

* Whately on "Instinct."

† Smee's "Instinct and Reason, as deduced from Electro-Biology," *passim*.

196. The aphorism is a true one, though often uttered by irreverent lips—"God helps the helpless." The Instincts of reasoning and responsible creatures are few and simple, and these, for the most part, are, with comparative ease, directed and controlled, or turned into other channels. But the one idea of the unreasoning creature is perfection itself. It carries out most undeviatingly the great design of its being, in which its enjoyments all consist; and parts with its Instincts only with its life. Its whole existence, from the commencement to the termination, is wisdom without teaching, and enjoyment almost without alloy—wisdom that constantly directs it right; and enjoyment, whatever its nature, that, even when interfered with by the contrivances of man, speedily finds in other channels room for its exuberant development. In such enjoyment its life is spent, till death—usually undreaded, because unlooked for—comes upon it, as it feeds upon His bounty "who openeth His hand, and satisfieth the desire of every living thing."

197. Not so perfect are the operations of creatures who are endowed with the faculties of individual intelligence, and intended for a higher state of development as rational and responsible beings. Their faculties have to be cultivated by the aid of experience, and many an inductive process, even before the age when it is generally supposed the reasoning powers commence their operations. Our different senses in childhood are early exercised in correcting the false impressions of each other; and thus the judgment becomes matured. The hand is seldom satisfied with the feeling of anything, till it carries it to the mouth to test it there. The eye sees, but is incapable of measuring distance, till experience has taught some knowledge of the rudiments of perspective; for how often is the hand of the infant held out to grasp that which is at a distance inconceivable! How often will its tiny feet, when just beginning to walk, hurry on, and drag those who are guiding and supporting them forward, with strange impetuosity, that its hand may reach the moon! Mere Instinct here fails to direct aright, because human beings have another guide, and another standard of action—a rational principle, intended to be exercised. And the undeviating perfection of blind Instinct, as

contrasted with this imperfection in a higher order of creatures, endowed with free will and intellectual faculties, would, even if unsupported by other evidence, be of itself sufficient to show that the Universe is the work of a benevolent Creator.

198. There is another opinion, in which most persons appear to agree—that man is a creature of Instinct, as well as those animals who have not reason superadded; though in him, those Instincts more usually bear the designation of Impulses and Passions; and to these I now turn, in search of further evidences of contrivance and design.

It has been clearly shown by Sir Charles Bell,* that man could not have been produced in any state to *live*, without a deviation from what is called “the uniform course of nature.” It would have been a deviation from it, had he been produced mature in body, and gifted with faculties suited to his condition: and had he been formed a helpless infant, he must have inevitably perished. An infant born into the world is, till Reason dawns, like other animals, the child of Instinct; but its Instincts require for their exercise the aid of maternal care. Its first impulse is to suck; and it puts that impulse into operation as soon as the opportunity presents itself. That impulse is truly an Instinct; for it is “a *blind* tendency to some mode of action, independent of any consideration on the part of the agent of the end to which the action leads.” In this, the human infant only partakes of the same Instinct with the general race of mammals; and it is a remarkable instance of contrivance and design—of the adaptation of means to a known end—that just at the time when this propensity to draw nourishment from the breast exists, and the infant requires such food—and at that time only—milk is secreted for the supply of its necessities. Moreover, there is a further adaptation of the physical nature of the atmosphere to the relief of the mother and the Instinct of the babe; for it is the pressure of the atmosphere upon the breast, and the withdrawal of that pressure within the infant’s mouth, that forces out the milk.† Thus, then, we have the aid of three concurrent circumstances, with-

* “Bridgewater Treatise,” p. 262.

† Whately on “Instinct.”

out the help of any one of which, the young, alike of mammals and of man, would, if left to nature's operations, inevitably perish.

199. Proceed we one step further. Behold the infant of a few weeks old. Behold it in its tiny helplessness! What is it but an Instinct, implanted by Creative benevolence—and that especially in cases where the mother dies—which makes the heart of woman so susceptible to its wants, subdued by “the might of weakness?” Instinctively she seeks to win its love by every fond endearing tone and action. She watches for its opening eyes to catch the “smiles that seem reflections of her own.” And even when oppressed with heavy sleep, toil-worn and care-worn, a loud noise disturbs her not, the slightest nestling of her infant startles her, and wakes her to its wants. Whose power, and whose benevolence, awoke the nurse's and the mother's love; and made an infant's tricks the food of her fond spirit, a sufficient reward for all the nursling cares which are so constantly demanded? It is not Reason, cold, calculating Reason, which teaches her thus to watch over and develope its powers, that it may attain to the perfect stature of a man or woman. It is not merely that *storgè*, or parental affection, which teaches the dam among all creatures to watch over and defend its young; for often, alas! will the nurse exhibit it more fully than the mother. It is an Instinct, implanted by God for the protection of His creatures during the period of their helplessness; and makes the very fact of that helplessness appeal with irresistible force to the heart, especially to the heart of unsophisticated woman. O love of infancy and childhood! brightest, purest, and most disinterested of all our earthly affections and propensities, what an exhibition of Creative wisdom and benevolence art thou! Link of our being, and cement of our race, while breathing thy rosy perfume on our path, and teaching us to drink of bliss from sparkling eyes, and share in the rapture of merry and unburthened hearts, thou dost enable us to fulfil one great purpose of our being,—the training up of others to supply our place when we rest in the narrow house,—and givest us, in connection with the labour, its own reward!

200. Nor is Creative wisdom and benevolence less displayed

in that conjugal affection, that sexual attachment, without which the great ties of society would soon be dissolved, and our race become extinct; for no calculations of propriety or duty would be sufficient, without sexual and parental attachment, to induce the continuation of our species. That strongest propensity of our nature has often been abused; but it is *per se* none the less pure and holy: and woe is man! that he feels not the holy beauty of God's purpose therein. Few could be the evidences of contrivance and design more marked than this adaptation of means to the great end in view—"the perpetuation of the great mystery of existence—the multiplication of immortal beings through bodily relationship." And how great is the goodness, as well as the wisdom, which is manifest in the fact, that this perpetuation is inseparably connected with all our tenderest and most delightful associations—the life of our life—the most unfailing spring of joy! What blind and unintelligent concurrence of atoms, with the aid of chemical affinities, could ordain and awaken such sensations of thrilling rapture—such a union of heart and soul, as burn in the breasts of pure and devoted lovers; and, having awakened it, could wisely adapt such benevolent means to the great end of their physical existence? It is the endowment of a God, who thus has left some slight remains of His once perfect image in the breast of his fallen creature, to testify that HE IS LOVE!

201. Glancing at a few of our strongest emotions, what evidences have we of something more than a mere concurrence of atoms, acted upon by a voltaic current, in the feelings of hope and fear, of joy and grief. When thought, independent of any impression from without, pictures the consequences, either temporal or post-temporal, of any course of conduct we may contemplate or be engaged in, how are we incited by hope, or deterred by fear! How, also, does enthusiasm often excite, or despair depress us, equally independent of any impression which the mind, through the retina, either does or ever has received. Again, the bodily frame may be suffering the most excruciating agony, while joy and love, by their influence upon the mind, overcome the torture, and shine forth from the countenance in beams of light! Or passion, remorse,

and anguish, may rage within, during the most vigorous and peaceful state of every corporeal function; until, by their sympathetic action, they have deranged the vital forces, and thus *induced* disease. These mental or moral consequences of our conduct, which, frequently as much as, or even more than, human laws, form the safeguards of human society, are exhibitions of unfailing wisdom and goodness in Him who ordained them; but can no more proceed from any concurrence of material atoms than a violent material explosion can proceed from thought, or the richest brilliance of physical light from an innate idea.

202. It is not my purpose to pass under review *all* our impulses and passions, each originally pure and holy, but now, in too many instances, perverted and deranged. The consideration of some of their derangements will come more naturally under our notice when Atheistical difficulties call for our attention. Having selected a few instances out of many, to show how these impulses and passions exhibit the wisdom and benevolence, as well as the power, of a Creator, I turn to the faculty of Reason, for illustrations of the same great truth.

203. How shall we account for the impartation of this principle of intelligence, without Intelligence to impart it? Can that which is *not* produce that which is? or an effect be incalculably superior to its cause? The doctrine of development will serve to mystify the question; but there is a chasm between the cleverest chimpanzee and the most uncultivated man which never can be leaped over. The one is endowed with a Rational principle, which can be cultivated and developed—a principle by aid of which he not only imitates, but reflects, compares, improves. The other, however highly cultivated, cannot be brought to exercise any other powers than those of memory and the senses. “In the one there are two systems of motives—the Instinctive and the Rational; and these are in correspondence with two systems of nerves. In the other there exists the Instinctive system only. And he is a poor physiologist, as well as a bad theologian, who would hope to develop an ape into a man. . . . Man is endowed with a brain, such as he has, for the purpose of exercising a greater attention in comparing objects, and also for the pur-

pose of controlling instinctive impression according to Reason. The sensual impulse of [mere] Instinct is so great, that the impression on one sense is not corrected by that on the other senses, as in man. Comparison, on which judgment depends, is deficient even in the highest class of animals. Thus, Blumenbach's Ape, having got hold of a large work on insects, turned over the leaves with a very studious air; but he pinched out all the painted beetles and ate them, mistaking the pictures for real insects. His taste and touch did not serve to detect the deception of his eye, while under the excitement of appetite, produced by the image of a thing which he naturally relished." *

204. Whence, then, could Reason, or intelligence, proceed, without the preëxistence of Intelligence to impart it? What gave to the human creature a capacity to investigate the laws of matter, and mould it to his will? What produced the discursive power of *fancy*, that wanders free and uncontrolled through nature, leaps alert from star to star, or with creative might imagines worlds and universes of its own, and peoples them with its imagined beings? What the corrective principle of *Reason*—that exercise of mind by which we compare facts with each other, and mental impressions with external things; by which we judge of the relations of facts, and of the agreement between our impressions and the actual state of things in the external world? What gave the ruling and judging power of *understanding*, to control the impulsive principle of will? What imparted the *will*—that power of arresting or changing the train of our thoughts at pleasure, of fixing on one, or passing to another, and awaking the principle of attention, so necessary to draw perception from sensation? What endowed us with the wonderful capacity of *discernment*, to judge between good and evil, right and wrong, and discover the essential unity of things apparently discordant? What called forth that *consciousness* in which all these phenomena unite, thus teaching us to regard the soul, even more than the ever-changing body, as our *ego*, our *eimi*, the centre of our individuality, our very living selves? I dwell not now upon the corporeal or incorporeal nature of these phenomena—a question which will more naturally arise when the immateriality of the

* Moore's "Uses of the Body in Relation to the Mind," p. 61.

soul is the subject under discussion. I simply ask the question—what produced them? or how could the phenomena of intelligence exist, without Creative Intelligence to impart them? In the very fact of their existence they exhibit indisputable evidences of *Creative power*. In their own nature, as faculties which, when properly exercised, are productive of wisdom, they tell us of *Creative wisdom*. Whilst the happiness they are capable of affording, when thus rightly exercised and developed, gives us irrefragable evidence of *Creative goodness*.

205. If it has been shown * to be utterly impossible that chemical affinities, analogies, and antipathies, even though in the varieties of restless change they had produced a human form, could impart to it life, or inherent volition, how much more impossible is it that they should produce this life, with reason superadded? When did dull, dead matter manifest the power to think? or phosphate of lime lay down propositions, and “draw the shy conclusion from its hiding-place?” Or, granting that voltaic action upon sanguineous or nervous fluid can be made to exercise the muscles, and to move the frame, is the conclusion thence inevitable, that it can exhibit rationality, or carry forward an inductive process? Is bodily action thought? Or are the advancing steps of a logical or illogical argument synonymous with the motion of electric fluid along conducting wires? Our very intuitive thoughts, born with us, and almost, like animal instincts, incorporated with our existence, testify against such strange absurdities, declaring that intelligence could only be imparted by some Being who possessed it. The cognitions of the Infinite must necessarily transcend all finite conceptions: yet soundly philosophical are the ironical questions of Holy Writ—“He who formed the eye, shall *He* not see? He who planted the ear, shall *He* not hear? He who teacheth man knowledge, shall *He* not understand?”†

206. But the reasoning, or intellectual, faculties are not the whole, or even the most remarkable, of Mental Phenomena. There are certain intuitive and instinctive principles of belief which, though they *may* be referable to an exercise of the un-

* Sections 40—48.

† Psalm xciv. 10.

derstanding, are still not by any means the result of any process of reasoning, but seem rather, as already intimated, like the implanted instincts of animals, to be a fundamental part of our mental constitution. These are described by Dr Abercrombie as *six* in number:—*

“1. A conviction of our own existence as sentient and thinking beings, and of mind as something distinct from the body.

“2. A confidence in the evidence of our senses in regard to the existence and properties of external things; or a conviction that these have a real existence independent of our sensations.

“3. A confidence in our own mental processes—that facts, for example, which are suggested to us by our memory, really occurred.

“4. A belief in our own personal identity, derived from the combined operation of consciousness and memory; or a remembrance of past mental feelings, and a comparison of them with present mental feelings as belonging to the same sentient being.

“5. A conviction that every event must have a cause, and a cause adequate to the effect.

“6. A confidence in the uniformity of the operations of nature; or that the same cause, acting in the same circumstances, will always be followed by the same effect.”

207. And whence came these impressions on the coinage of our nature—indestructible accompaniments of our mental being, written upon the soul as with a pen of light, to keep us right when prostituted reason would guide us into error? Obscured they may be, by the mists of Scepticism, or overlaid with the rubbish of unmeaning words; but the impression will remain for ever, and, brought into the sun-light of truth, will shine forth in all that freshness with which it was inscribed by the Creator's finger. In all the ordinary operations of life we proceed as though we considered these principles as axioms; and judge the man insane who refuses to be guided by them. We call no process of reason to our aid, to tell us why they

* It may be a question, whether some of these principles are not rather inductive than intuitive; but I have not chosen to reduce the number which Abercrombie gives.

should be so, but act upon them as indisputable facts, which reason did not teach us, and which it were vain for reason to dispute. Whence, then, this deep and almost indelible impression? Whence, but from Him who implanted in its organization the instincts of the unreasoning creature; and stamped these few first principles on human consciousness, to hold a check upon us in our wanderings, and testify of His *wisdom* and *goodness* by whose *power* we were created?

CHAPTER VIII.

DIFFICULTIES RAISED BY ATHEISTS, REGARDING THE WISDOM AND GOODNESS OF GOD, MET AND OBIATED—CONSIDERATION OF THE PRINCIPAL VIEWS WHICH HAVE BEEN PROMULGATED TO SHOW THAT MATERIAL THINGS FURNISH NO EVIDENCE OF DIVINE WISDOM AND GOODNESS; OR THAT A BELIEF IN CREATION IS NOT NECESSARY, IN ORDER TO ACCOUNT FOR WHAT IS NOW EXISTING—CHANCE—NECESSITY—NATURE—DEVELOPMENT.

208. IN devoting a portion of this Work, especially, to the obviating of such difficulties regarding the Divine wisdom and goodness as various Atheists have raised, I shall take first in order those which have reference to the *facts* of creation, and are brought forward for the purpose of proving that existing things do *not* testify to an intelligent and benevolent Creator. I shall next take up those objections which have reference to Doctrines arising out of the facts of creation; or attempts of the same perverted intellect to prove, that, if the Universe were the work of a wise and benevolent Creator, things would not be in the condition in which we find them.

209. That the more creative or imaginative of our mental faculties is subject, like the outward organ of vision, to be deceived and misled, will be readily allowed. But reason, as

well as fancy, has its optical delusions. Though given for the purpose of informing the judgment, and, amidst conflicting appearances, eliciting what is true, it yet, very frequently, is the occasion of mistake, either from too hasty deductions, or through insufficiently weighing the premises from which its conclusions are drawn. One of my children, when little more than two years old, after observing with strict attention the narrow crescent-shape of night's chief luminary, very dogmatically asserted that "somebody had broken the moon." Nor was it easy to dispel from his young mind this delusion of the reasoning faculty. He had previously observed it shining a full round orb, and now saw little more than a bare half-outline of its former splendour. Judging by "the evidence of his senses," the conclusion was a natural one, and, on the Atheistic principle of "rejecting all chimeras of the brain, and trusting *only* to the evidence of the senses," * it was not only a *natural*, but a *sound* conclusion, that the moon had been broken.

210. Such is the process of semi-reason by which the Atheist has usually arrived at the conclusion, that this expanded Universe displays no marks of Intelligent contrivance and design. It is but too truly remarked, by the author of the so-called "Vestiges of the Natural History of Creation," that "where our perceptive faculties are baffled we dream."

211. In the course of my previous Chapters, while endeavouring to prove the existence of "a Being all-powerful, wise, and good, by whom everything exists," it was my object to obviate, in passing, such difficulties as rose naturally into view. Yet, to have given in such places a full consideration to certain Atheistical conceits would have necessitated a wandering from the proper subject of discourse. The answers then incidentally given, will, however, render any further notice of most of these difficulties unnecessary. I have, therefore, reserved only some prominent and more popular ones for separate consideration.

212. Enough has perhaps been said, in passing, of the theory of CHANCE, and the "fortuitous concourse of atoms." In the present day, that theory of the old Materialists—if I may dignify with the name of theory a mass of confused ideas tending to nothing—appears to find no advocates. I will, therefore,

* Mirabaud.

dismiss it with a few words. It is utterly impossible that such a "CAUSE" (so called) should be the origin of either existence or event. The word "Chance," as thus used, signifies, whenever any precise meaning can be attached to it, the concurrence of a plurality of bodies, moving from different quarters, without any known direction. But this is only an "*effect*," and not a *cause*. Nor could it have originated existence or motion, because both must have existed at once prior to, and in order to, *its* production.*

213. Under the name of NECESSITY, the "first cause" of Mirabaud, and the "mother of the world" of Shelley,—under the name of NATURE, a term frequently but little understood by those who use it,—and in the Lamarckian dream of DEVELOPMENT, as revived by the author of the "Vestiges of the Natural History of Creation," and still more lately by Atkinson and Martineau, and, alas! by an Oxford Professor, the Rev. Baden Powell, and even yet *more* lately by Mr Charles Darwin, the grandson of one who pursued a similar dream in former years,—we find systems of error much more plausible, and, therefore, more calculated to mislead the mind.

214. Perhaps as clear a proposition of the theory of NECESSITY—as fair an embodiment of the popular saying, "I believe what is to be will be"—as is usually met with, may be found in the statement of Atkinson:† "Whatever is, is right, and essential to the whole, and could not be otherwise than it is." Similar in purport are the words of Mirabaud: "If we reflect a little, we shall be obliged to acknowledge that everything we see is necessary; that it cannot be otherwise than it is; that all the beings we behold, as well as those which escape our sight, act by certain and invariable laws."‡ In conformity with this view, matter is represented by the latter as being "necessarily existent," and motion, as "a manner of existence that flows necessarily out of the essence of matter," which "generates, preserves for a time, and successively destroys one part of the Universe by the other, while the sum of existence remains eternally the same."§

* See, further, Brown's "Burnett Prize Essay," vol. i. p. 79.

† "Man's Nature and Development," by Atkinson and Martineau, p. 133.

‡ "System of Nature."

§ *Ibid.*

215. It would be foreign to my purpose to enumerate all the dreams of this so-called Philosopher: his suns incrusting themselves, and becoming extinguished; his comets changing into planets, and planets into comets; his production of the human race as "a necessary consequence of the disentangling* of our globe, or one of the results of the qualities, of the properties, of the energies, of which it is susceptible in its present position." By a number of mad, chaotic visions he attempts to overlay the *order* of creation, and show that its apparent order is only one phase of its confusion. But all is assumption; not a particle of evidence is offered in proof, while universal nature, as we have already seen, testifies to a regularity which is calculated to continue for ever, unless interfered with by the fiat of its Maker. It is true, that his conceit of nebulous matter gathering into worlds, which, by their own essential energies, clothe themselves with verdure, and fill themselves with living creatures, met, in the last age, with something like corroboration, when the telescope of Herschell first disclosed the nebulæ, which he fancied were suns or worlds in the process of formation. But so surely as the light succeeds the morning's dawn, so surely are the errors of the twilight of Science dispersed by its clearer day. La Place had previously demonstrated the stability of the Universe, and shown that the deviations in the planetary orbits are regular and compensatory; and now the telescope of Lord Rosse has demonstrated that these "worlds in the process of formation" are visions, as destitute of foundation in fact as were the theories of destruction once built upon planetary deviations. Thus, one by one, the outworks of Mirabaud have been thrown down by the progress of scientific discovery, until his "System of Nature" is reduced to the bare affirmation—"Everything we see is necessary, and cannot be otherwise than it is."

216. I have already shown that NECESSITY, if considered as a "law without a Legislator," an effect without a Cause, except its own inherent impulse, must operate alike at all times, and in all places; and, therefore, whatever is necessarily exist-

* This "entangled" sentence forms a fair type of his philosophy.

ent, must be at once immense, eternal, and immutable.* It is consequently evident, that nothing can be necessarily existent, except an Infinite Being, or, in other words—a God. I have further shown, by the very nature of eternity, that *matter* could not possibly be eternal, but must have been created.† The doctrine of Atheistic necessity, as the first cause, or originator, of all things, is thus clearly invalidated. There are, however, some vague associations of ideas, in which “necessity” and “nature” are heterogeneously mingled; and these it may be desirable to dissociate, in order to clear away some of the mists with which Atheistic systems would obscure the light of truth.

217. That something must be necessarily existent, is a truth admitted on every hand; and it may be equally true, that there is *a sort of* necessity pervading finite or created things—even rational creatures—in those actions in which deliberate choice is exercised, being impelled thereto by the overbalancing of one set of motives and influences, by another set of motives and influences then in operation. To place such an unintelligent necessity, however, in the throne of Deity, or make it the originating cause of that on which it operates, is worse than the star-worship of the Eastern Magi. Whatsoever in being grows older, lives and moves in one or various localities, or alters and changes, cannot be necessarily existent: for that which is changeable exists not necessarily and of itself. Whatever is, *necessarily and of itself*, was *so* from all eternity; and must have had its whole being, and everything connected with its being, by the same necessity as any portion thereof. Change in such a subsistence is impossible. If necessarily existent, its first form or figure, and every accompaniment of its existence, was as essential *as* its existence; for whence should it receive an addition to, or alteration in, itself, if it existed of necessity, and therefore independently? It can be subject to no change of figure, of place, or of situation, and, consequently, cannot be in motion. For we can frame no imagination of the existence of a particle, or a being, or a world, but we may suppose it to fill all space, or to be in some one or other point of

* Sections 52—54.

† Sections 29—33.

space; and if it *be* necessarily, it must be *there* necessarily; and if it be *there* necessarily, cannot be anywhere else, but must be there *eternally*; and neither can, nor by any possibility could, ever *not* be there.

218. Such a necessity, then, cannot appertain to anything finite; and for any other necessity than this *we must presuppose the existence of an Intelligent Operator, of whose will such necessity is the imposed or arbitrary law*, who acts not upon Himself, (for, existing “of necessity,” His own being cannot change,) but upon His own creature, made by His own action, and governed by His own laws. From such a necessity the Atheist can gain no support; and to such a necessity, therefore, it is needless here to offer any objections; because the freedom of the will, in finite creatures, can exist only in the spontaneous limitation of the exercise of Divine power.

219. One idea more, before we leave the consideration of Necessity. It was no *dream* of Cudworth, or of Drew, that the *necessary* existence of Deity might be inferred from His *possible* existence. Imperfect beings, who are *contingently* possible, may be, or may not be. But this is not the case with that perfect Being, who, if He exists, exists by necessity. If God, or a perfect Being, in whose essence necessary existence is contained, be possible, or in no way impossible, ever to have been,—then of strict and simple consequence HE IS; because, if He exist at all, He exists of necessity; and, on the supposition of His non-existence, it would be utterly impossible that He ever should have been.

220. And now for a word or two upon NATURE.

“Nature,” says Mirabaud, “by its combinations, produces suns, which *place themselves* (!) in the centre of so many systems: she forms planets, which by their peculiar essence gravitate and describe their revolutions round these suns; by degrees the motion is changed altogether, and becomes eccentric; perhaps the day may arrive when all these wondrous masses will disperse, of which man in the short space of his existence can only have a faint and transient glimpse.”

221. “Since Nature,” says the Baron Von Reichenbach, “supplies us for our existence with nothing but food and air, we are naturally led to suppose that she intended us to ob-

tain from food and air everything which is necessary to our existence.”*

222. Now, any one not further acquainted with the writings of these two authors, might readily come to the conclusion, that, by the term “Nature,” both meant to convey similar ideas—the “nature” which “produces” and “forms” being the same with the “nature” that “supplies” and “intends;” and the term, in both instances, being somewhat vaguely used to describe the operations of an Independent Being, who was at once a “producer” and a “former,” a “supplier” and “intender.” Such, however, at least, was not the intention of the former of these writers. By the ambiguous term “Nature,” he seems to understand the order and configuration of the Universe, or the actual constitution of its parts; and when the question at issue is, “What is the cause, or who is the Author, of that order, configuration, and constitution?” he answers, Nature “produces,” Nature “forms;” or, in other words, that that order, configuration, and constitution “produced” and “formed” itself—an absurdity which, when thus plainly stated, is palpable to the meanest understanding.

223. What may be the theological views of the other writer his scientific works give no means of judging; but, if by “Nature” he means the CAUSE which has created, arranged, and still vivifies, the Universe,—a Cause which, by possessing the ability to “*supply*” the needs of His creatures, and to “*intend*” by that supply the production of certain results, affords evidence of intelligence,—such a Cause must be gifted with the attributes of power, wisdom, and goodness; and, therefore, what he calls “Nature” I will call God.

224. Finally, then, if the term “NATURE” be restricted to define the material frame-work of the Universe, or the laws by which it is governed, such a “nature” cannot be First Cause of anything. If it be applied to the free and intelligent First Cause of all things, then “NATURE” is but another name for God.

225. Having disposed of Atheistic “Necessity” and “Nature,” I now turn to what is called the “Doctrine of DE-

* “Researches on Magnetic Electricity, &c.,” by Karl Baron Von Reichenbach, p. 123, edition 1850.

VELOPMENT." Here we have, indeed, nothing essentially new ; but an improvement, if it may be so called, of older Atheistic theories ; for, however it may lay claim to originality, it is but in fact a development of the views of Aristophanes, Lucretius, and others—that all things sprung originally from senseless matter, night and chaos, ascending gradually to higher and higher perfection ; first, inanimate bodies, as the elements ; then birds, and other brute animals ; afterwards man.

226. The "Vestiges of Creation," which, under this head, must first engage our attention, is not ostensibly Atheistic in its principles. Its author professes to believe in the existence of a Deity, but seeks to annul the doctrines of Creation and Providence, by limiting the work of God to the impressing upon matter certain primary laws, under the influence of which all finite things are produced, or "developed,"—as though the Divine dignity must be saved from the trouble or degradation of a more direct interposition ; or as though it were unworthy of Him to carry out results which He must from eternity have designed and contemplated !

227. It is not easy to compress the substance of a large book into a very limited space ; but I believe the principles of the work in question may be fairly and fully summed up in these two main propositions :—

1. That the matter of which the stellar and solar "universes" are composed, originally existed as a sort of fire-mist, or nebulous mass, diffused through the space in which they now perform their revolutions. That this nebulous matter, or fire-mist, by cooling down, lost much of its repulsive energy ; and gradually, in obedience to the laws of attraction, resolved itself into suns and planets, which, retaining in such forms a portion of the force they originally possessed, rotated on their axes, and described their various orbits.

2. That the earth, as well as other stellar and planetary worlds, being thus brought into existence, the ενεργεια, or active energies of matter, next called forth the undeveloped germs of animal and vegetable life, which have been gradually, in the course of incalculable ages, developed into the various races that now inhabit our planet ; *"the simplest and most primitive types of being, under a law to which that of like production is sub-*

ordinate, giving birth to a type superior to it in organization, this again to the next higher, and so on to the highest."

228. These two propositions are attempted to be supported by a variety of theories and conceits, and a few scraps of very inconclusive evidence. The theories and conceits I shall leave as I found them; but will endeavour to answer every fraction of the *evidence* brought forward to sustain them. First, however, I would premise, that the existence of this nebulous matter, or fire-mist, yet remains, on Atheistical principles, to be accounted for. It could no more "come of itself," than could a world and its inhabitants, although the latter hold up to our view clearer manifestations of wisdom and goodness.

229. All the evidence the author of the "Vestiges" brings forward in favour of his first proposition is—

1. That Herschell discovered with his telescope what he took to be nebulous matter, or worlds in the process of formation; and that La Place drew out a beautiful theory, showing how a Universe might be developed out of nebulous matter.

2. That the internal heat of the earth exhibits signs of its having once been in a state of fusion; and, therefore, there is good reason to believe in the existence of a nebulous condition, wherein the repulsive powers of heat prevailed to keep matter in such a gaseous form.

3. That one M. Plateau, of Ghent, once constructed what may be called "an experimental verification of" a part of "La Place's ideal Cosmogony." Placing a mixture of water and alcohol, and a small quantity of olive oil, of density precisely equal to that of the mixture, in a glass box, he obtained a liquid mass relieved from the operation of gravity. He then introduced a vertical axis, with a small disc upon it, so arranged that its centre was coincident with the centre of the oil, which, by molecular attraction, had assumed the globular form. Turning the axis at a slow rate, he made the oil rotate, and assume the shape of a spheroid, flattened at the poles, and bulging at the equator. By quicker motion it was made, first, more spheroidal; then, abandoning the disc, was transformed into a perfectly regular ring. By using a smaller disc, and continuing the rotation after the separation of the ring, he generated rotatory motion and centrifugal force in the alcoholic fluid; and

the oil ring, prevented from returning into the globular form, divided itself into several isolated masses, each of which took the globular form, performed a rotatory movement, and generally flying off in a tangent, in consequence of the force communicated, revolved also around the disc in the centre.

230. This first leading principle, and the evidence adduced in support of it, will soon be disposed of.

To the first scrap of evidence the reply has been anticipated, and needs only to be glanced at now. Herschell's discovery of worlds in progress of formation was only a fancied one, which Lord Rosse's telescope has dissipated.

When amid the rolling orbs of heaven man first beheld those streams of milky light which back our galaxy, and shine out from afar in other portions of the wide expanse, he deemed them the reflection of the neighbouring stars, more thickly studded there. The telescope advanced in power, and showed that they proceeded from a source *behind* those stars, and *very far beyond them*. Then arose nebulous dreams and vague interpretations. Thought stood still. But Science pressed yet onwards. The great conception, what the nebulae were in their vast reality, was far too much for man's imagination. Yet Science still pressed onwards. The telescope of Parsonstown resolved the nebulae, and showed them to be—what? Not fire-mists wandering vagrantly through space, and gradually condensing into worlds—not suns and systems, hidden by a veil of misty light—not constellations merely; but galaxies! universes! compared with some of which our own galaxy, the Milky Way, is but as a spot of feeble or *odyllic* light. Far, far away in the unfathomable depths of space; on, on, on, beyond regions over which, in some instances, it takes light a hundred thousand years to travel, they exist as multitudinous beds of ever-shining orbs, regions of being fresh opened to human ken, whose rays, commingling with the rays of our own galaxy,—while they expand man's thoughts with the inconceivable vastness of creation,—should light him up to its great Author, God. Nor is this more modern view of the nebulae to be classed among the theories which some new discovery may dissipate. It is a discovered *fact*, which every new application of powerful space-penetrating instruments to other distant spots of milky light tends further

to illustrate. Thus, then, the fire-mist conceit is sufficiently disposed of. The nebulae our author appeals to are creations already, and need no cooling down to harden them into suns and planets.

231. Nor is the view of the Universe which this writer builds upon the fire-mist theory at all more reconcilable with fact than its misty foundation. Suborning the meteorites as false witnesses, he says: "Analogy would lead us to conclude that the modifications of the primordial matter forming our so-called elements, are as universal, or as liable to take place everywhere, as are the laws of gravitation and centrifugal force. What is exceedingly remarkable, and particularly worthy of notice, as strengthening the argument that all the members of the solar system, and perhaps of other systems, have a similar constitution, [is that] no new elements are found in these bodies, [meteorites]; *they contain the ordinary materials of the earth, but associated in a manner altogether new, and unlike anything known in terrestrial mineralogy.*" Were this statement strictly true, it might give some support to the idea of an unintelligent producing, or developing, law, which operates similarly everywhere. But we have no reason to believe in such a "uniformity" in the solar and astral systems. The extra-telluric, or uranological, origin of meteorites is so far from being an established fact that at the meeting of the British Association, in 1853, it was an unsettled subject of discussion. But even if we had infallible proof that meteoric stones are not formed by chemical processes in our own atmosphere, but are foreign matter introduced into that atmosphere from without, still, in the case brought forward as "particularly worthy of notice," *a part of the evidence is suppressed.* The meteorites, which have been tested by examination, instead of containing "*THE ordinary materials of the earth,*" contain only a part of them, a small, and to us the least important, part—in some instances but three elements out of sixty! and, as oxygen is never found in them, no process of development could render a world so composed a fit habitation for pulmonic creatures.*

* At the meeting of the British Association, in 1856, Mr E. J. Lowe, of Beeston Observatory, Nottingham, brought forward very weighty arguments and evidence to prove that the luminosity which accompanied the course of meteors

232. Descending from the Universe to our own planet, I reply, to the second of our author's evidences, that the internal heat of the earth may be accounted for in other ways than by making it a base to the "fabric of a vision." Sir Charles Lyell has clearly shown* we have no ground for assuming as an *ascertained fact*, "that there has been a constant and gradual decline in the absolute amount of heat formerly contained in the atmosphere and waters of the ocean, such as it was conjectured might have emanated from the incandescent central nucleus of a new and nearly fluid planet, before the interior had lost, by radiation in surrounding space, a great part of its original high temperature." If the earth was thus constantly losing its heat, it must contract in cooling; but La Place has shown, by reference to astronomical observations, made in the time of Hipparchus, that in the last two thousand years, at least, there has been no sensible contraction of the globe by cooling; since the result of this would have been the shortening of the day, which certainly has not been diminished one three-hundredth of a second—as close an approximation to nothing as we can expect merely human powers to calculate. Quite as good reason have we to suppose this internal heat proceeds from chemical changes, decompositions, and combinations,—accompanied by a development of electricity,—which are constantly going forward, as from such a cause as the author of the "Vestiges" suggests.

does not belong to those meteors themselves, but is caused by their rapid passage through the atmosphere. This would rather lead to the conclusion, that the meteors themselves *are* usually extra-telluric, which view the constant absence of oxygen tends to corroborate. That this is not *always* the case, however, has been established upon indisputable evidence. On Saturday, June 12th, 1858, a violent thunder-storm visited the neighbourhood of Birmingham. It was three days before the Queen's visit to that town, on which occasion numerous platforms had been erected on the line of route to Aston Park, over which awnings were placed for the protection of their occupants. Curiosity was excited, a day or two after, by numerous small stones or cinders, apparently meteoric—consisting chiefly of carbon and sulphur—being picked up in the streets and roads. And when such of the awnings above alluded to, as were spread out before the storm, were taken down, these stones were found plentifully sprinkled on *them*—a clear evidence that if the storm had not by some chemical process *produced* them, they were, at least, its accompaniments.

* "Principles of Geology," Chapter VIII., edit. of 1850.

The mean density of the whole earth is five times that of water ; but if the centre was a fire, of such a nature as this "fire-mist" theory demands, its mean density ought rather to be less than that of water. Moreover, we have strong analogical evidence for supposing that if the centre of the earth were fire, of heat so intense as is represented, the outer crust, instead of increasing constantly in thickness, would be gradually resolved into a fluid state. Yea, further, according to M. Poisson, we may conclude, that if the globe ever passed from a liquid to a solid state, by radiation of heat, *which must in passing off into surrounding space have necessarily passed from the centre outwards*, the central nucleus would have begun to cool and consolidate first.*

233. It is, certainly, not improbable that the earth *may* have once been in a state of fusion, or that its interior may even now be in such a state. The chemical nature of its elements presents no impediments to such a condition ; though a very large portion of those elements, so far as we have yet been able to discover, could not *possibly* exist in a *nebulous* condition. The researches of MM. Orbigny and Eli de Beaumont, as to the origin of earth's mountain ranges, give evidence strongly in favour of a fused internal state. And though Dr Lardner, reviewing, in his "Popular Geology," the various convulsions through which our planet has passed, comes to the conclusion, that nearly up to the Adamic period the earth depended more for heat upon its own central fire than upon the sun ; which conclusion he arrives at in consequence of the flora and the

* See further on this subject, Lyell's "Principles of Geology," Chapters VIII. and XXXII., edition 1850. One fact, frequently observed in the iron districts, strikes me (though the conditions are not exactly the same) as militating against M. Poisson's idea that the central nucleus would consolidate first : it is, that the large pieces of dross, or "cinders," as they are termed, which are thrown away from the iron furnaces after the ore is extracted, often, when consolidated, though hot outside, will, if broken, be found still fluid within. Humboldt suggests other reasons for the alteration in the temperature of our planet, whose higher internal heat *may* only be slowly radiating outward ; as, for example, possible alteration in the luminous intensity and radiant heat of the sun ; and a difference in temperature of the portions of space through which our system has passed.

fauna, even of the upper Tertiary Strata, being similar at the equator and the poles : yet, he seems to have lost sight of the significance of a few simple facts ; such, for example, as that of the Siberian mammoth being exhumed, not in a fossilized, but in a *frozen*, condition, and differing from its tropical brethren in having a thick coating of hair, as though to adapt it to a colder clime.

234. Clearly, however, before the Author of the “ Vestiges ” has any right to claim the internal heat of the earth as a witness in favour of his nebulous theory, it is incumbent on him to show that the supposed central fire is not a mere theory, but an established fact ; and, further, that, supposing it to be a fact, the nebulous condition is, (chemically speaking,) at least, *a possible*, if not a *necessary*, antecedent.

235. I now turn to the third principal point brought forward by the author of the “ Vestiges,” in support of the fire-mist ground-work of his system. This is really a scrap of useful evidence, though not useful for the purpose to which he applies it. To have supported his system, the author should have shown that the oil used by M. Plateau *worked itself*, without his aid, into a spheroid and a ring, then *divided itself* into smaller globules, which retained the rotatory motion *without the insertion of the revolving disc in the centre*. As it is, the experiment only showed, on a small scale, how planets, by the natural laws of motion, would describe orbits round the centres towards which they gravitate, *when projectile impulse has been communicated from an independent source* ; or, in other words, *in obedience to the mandate of Omnipotence*. And if we are to admit a foreign force,—if we must go higher for a final Cause,—why should we reject the testimony of universal nature, that it is a personal Deity—“ a Being all-powerful, wise, and good, by whom everything exists ? ”

CHAPTER IX.

THE SAME SUBJECT CONTINUED—DEVELOPMENT—LAW.

236. FROM the first, I come now to the second main principle, or proposition, contained in the “Vestiges of the Natural History of Creation,” the consideration of which occupies by far the greater portion of the volume in question. Great, however, as is the amount of writing with which the author endeavours to substantiate it, he adduces very little *evidence* in its support; and that little is so overlaid, that it might easily be missed by those who are not absolutely seeking for it. There is a conceit running through the whole, that animal propensities have determined animal organization—that a prolonged desire, and prolonged efforts, in inferior creatures, after something for which they were not originally adapted, have enabled them to attain new structural peculiarities. This is sufficiently answered by the fact, that, as far as our experience extends, propensities and organization always correspond; and we must have instances of a want of such correspondence before we can be expected to credit their existence. But leaving this, and all other conceits, and taking only the evidence the author brings forward, it may be summed up into the following six propositions:—

1. That the fossils found in the crust of the earth give evidence of a progressive development of higher orders in the animal creation.

2. That a variety of animals and plants have been greatly improved by training and cultivation; and it is not, therefore, unreasonable to suppose they might be trained and cultivated into a higher order of animals and plants.

3. That as such things as monstrosities and imperfect creatures are sometimes born, “it is no great boldness to surmise that a super-adequacy of force in the measure of this under-adequacy might produce a higher order of creatures.”

4. That we have evidence of the capacity of germs to pro-

duce other than their parent forms, in those of the simpler thallogens, which, if they fall upon dead or putrid organic matter, will produce fungi—lichens upon vegetables, earth, or stones—and algæ where water is the medium in which they are developed.

5. That as a frog produces a tadpole, which, if kept in water, without sufficient light, will never become a frog, it is easy to conceive that this order might be reversed, and a tadpole produce a frog.

6. That in their embryo state, the higher races of animals gradually pass through the forms and natures of the lower, or at least of those belonging to their own *stirps*; and thus the human foetus is successively a monad, worm, fish, and monkey, ere it assumes the human form.

237. (1.) Now, to the first of these propositions I reply—that though true in a measure, it is *not* true in the sense which the author contends for. That there have been successive appearances of creatures on the earth and in its seas, first of the lowest orders, and afterwards of higher, until at last, as the highest, man was introduced, Geology will testify. The evidence is graven in the rocks which form the crust of our planet. To quote the language of Hugh Miller: “The general advance in creation has been incalculably great. The lower divisions of the vertebrata preceded the higher; the fish preceded the reptile; the reptile preceded the bird; the bird preceded the mammiferous quadruped; and the mammiferous quadruped preceded man.”* But is it necessary, or reasonable, therefore, to conclude, because such was the *order* of their appearance on the earth, that the one race, in each case, not only *preceded*, but *produced* the other? The evidence of Geology leads quite in a contrary direction to that which would bring us to any such conclusion. Among the molluscs of the lowest strata in which organic remains have been discovered, here and there are strewn the remains of fishes; and these, not sprats and minnows, just developed out of molluscs, to form the parentage of higher races occupying a super-position in the rocks. No! lower than the general bed of fishes are found the remains of the Cestracion, the Onchus, and Asterolepis,

* Miller’s “Footprints of the Creator,” p. 179.

representatives of our sharks and sturgeons, fishes of far higher order than those which appear in deposits far above them.* Indeed, according to the *present* testimony of Geology, the Cestracion Phillippi, (Port Jackson shark,) which is still an inhabitant of earth's seas, was among the first fish by which they were occupied; and from no simple mollusc could its gigantic form have been developed.†

Again: as regards the reptile races, the stony records of the earth give no countenance to the dream that they were gradually developed out of fishes. No specimen which would testify to any such development, no creature intermediate between them, has left its remains to show the stages of progress. On the contrary, just as in the former case of fishes, the highest order of reptiles—the mighty ichthyosaurs of most gigantic proportions—are discovered among the deepest imbedded of reptile remains, to which smaller and less-developed races of that order succeed, and occupy an upper position in the earth's crust beneath us. Thus it is, too, with birds and quadrupeds. Where deepest down in the earth's strata their remains appear they show no evidence of just emerging from a lower order. They stand forth in full development, and usually of larger size than such of the same orders as occupy a super-position. Indeed, the evidence of Geology most naturally tends to the conclusion, that each of the successive races of creatures, when it occupied the position of primate on the earth, or in the seas, was created in its highest state of perfection; and that the varieties of the same orders which afterwards appeared, manifested rather a progress of degradation than a progress of development towards a higher class. "There was a time," to quote again the language of Hugh Miller, "in which the ichthyic form constituted the highest example of life; but the sea, during that period, did not swarm with fish of the de-

* The author of the "Vestiges," in his supplementary explanations, dwells much upon the [supposed] fact, that the earliest fauna (that of the lower Silurian formation) contains no fish; and, therefore, gives evidence of seas containing crustacean and molluscan life only. But remains of fish have since been found in, and below, that formation, and those, not of fish of a lower kind, the embryos and fetuses of their class, but fish of the highest state of development.

† See Miller's "Footprints of the Creator," *passim*.

graded type. There was, in like manner, a time when all the carnivora and all the herbivorous quadrupeds were represented by reptiles; but there are no such magnificent reptiles on the earth now as reigned over it then. There was an after-time when birds seem to have been the sole representatives of the warm-blooded animals; but we find, from the prints of their feet left in sandstone, that the tallest man might have 'walked under their huge legs and peered about.' Further, there was a time when the quadrupedal mammals were the magnates of creation; but it was an age in which the sagacious elephant, now extinct save in the comparatively small Asiatic and African circles, and restricted to two species, was the inhabitant of every country of the old world, and when vast herds of a closely allied, and equally colossal, genus, occupied its place in the new.* Most certainly, "all the facts of Geological science are hostile to the Lamareckian conclusion.....As if with the express intention of preventing so gross a misreading of the record, we find, in at least two classes of animals,—fishes and reptiles,—the higher races placed at the beginning; the slope of the inclined plane is laid, if one may so speak, in the reverse way; and, instead of rising towards the level of the succeeding class, inclines downwards, with at least the effect, if not the design, of making the break where they meet exceedingly well-marked and conspicuous."†

Further, in the words of Cuvier: "If the species have changed by degrees (as thus assumed), we ought to find traces of this gradual modification. Thus, between the *Palæotherium*, and the species of our own days, *we should be able to discover some intermediate forms*, and yet no such discovery has ever been made.‡ Since the bowels of the earth have not preserved monuments of this strange genealogy, we have a right to conclude that the ancient and now extinct species were as permanent in their forms and characters as those which exist at present; or at least that the catastrophe which destroyed

* "Footprints," pp. 179, 180.

† Ibid. p. 248.

‡ "All geological history is full of the beginnings and ends of species, of their first and their last days; but it exhibits *no* genealogies of development." Miller's "*Testimony of the Rocks*," Lecture V.

them did not leave sufficient time for the production of the changes that are alleged to have taken place.”*

238. (2.) I turn to the second scrap of evidence by which this development theory is supported in the “*Vestiges* ;” and here, as in the former case, I find truth and error carelessly, or *carefully*, commingled. It is true, that a variety of plants and animals have been greatly improved by training and cultivation. It is true, that by attention to these things, in strict accordance with scientific rules, we can alter the size, and even the colour and shape, at once of animals, plants, fruits, and flowers. But no evidence has ever been adduced to show that we can develop one *kind* into another.† Every practical gardener knows, that when flowers which are usually of one colour have, by some undiscovered impregnation of the seed, displayed an entirely different hue, the utmost care and circumspection are necessary to perpetuate specimens of the variety. Its seed has always a tendency to revert to the original type. I once possessed a carmine-coloured gilliflower, which had thus been produced by some unknown impregnation ; but, although that plant, from the period of its first blooming to the ripening of the seed, had been carefully excluded from all others, by all that were near it being rooted up and left to perish, its seed produced hundreds of the original red and yellow colours, and only *four* that bore any resemblance to the parent. If flowers, then, are thus tenacious even of their natural colours, how wild

* “Theory of the Earth,” &c.

† When pursuing certain experiments some years ago, I had evidence *quite* sufficient to convince a Lamarckian of the convertibility of one kind of plant into another. From repeated observations, I *seemed* to have ascertained that there are certain grasses, which, if abundantly supplied with water at the roots, will partake of the character of rushes. There was a spot in my garden, which, when I kept it abundantly supplied with water, would produce rushes, but when drained, brought forth grass. This was the case year after year ; and, but for untiring perseverance, I might readily have come to the conclusion, that these grasses when *over-fed* swelled out into rushes, or into something so like them, as not to be distinguished either by appearance or odour. A few years, however, put an end to this “transmutation.” I did not allow any of the rushes to seed ; and, consequently, when by four returns of spring all the germs already in the ground became developed, no supply of water, however abundant, would bring forth rushes again.

must be the idea of developing them into flowers of an altogether different kind, or expecting, by a process of over-feeding, to raise a sun-flower from a marigold.

There is, perhaps, no species of plants which has been more developed than the *brassica*. Cabbage and kale are very different things from what they were when man took their wild progenitors first under his care. But who, except a Lamareckian theorist, has ever dreamt of developing a lettuce into a cabbage, or a cauliflower into a bread-fruit tree?

In like manner, that staple fruit of our islands, the apple, has been made, by cultivation, to produce a number of excellent varieties, and all, it is not improbable, are the children of our wild hedge-row crab. But who ever thought of developing an apple into a pear or an apricot, a gooseberry into a melon, or even a currant-bush into a vine? Orders, species, and races, let the theorist dream as he may, *are* orders, species, and races; and the bounds of varieties are fixed and determinate. Man, by cultivation, may enlarge, improve, and vary,—which, perhaps, may only be bringing back degenerated things nearer to their original state,—but he cannot organically alter. And, as though to preserve the strict demarcations of orders, species, and races, those which are thus improved and developed have a tendency, when deprived of the extra stimulants, or extra care bestowed upon them, to revert back to exact accordance with the types from which they sprang.*

As with plants, so it is with animals. The ox may only be a tame variety of the buffalo; and, by improved feeding, judicious crossing, and careful selection of individuals to be employed in propagation, man may develop it into a *great* ox, but will never produce out of an ox an hippopotamus, or rhinoceros, nor train it into a mighty elephant. The pig, to take an instance which the author of the “*Vestiges*” himself

* There is now, in the garden of my friend Mr Thomas Hargrave of Curd-worth, Warwickshire, a purple Laburnum tree, planted by his own hand, about the year 1835, which has, since 1850, begun to produce on the newer wood the yellow flowers belonging to the type from which, by some impregnation of the seed, it had diverged. And this is not on any particular portion of the tree, which might have resulted from grafting, or other causes; but the yellow and purple flowers will grow upon the same branch, and the same stem.

has selected, may be but a domestication of the wild boar of the forest, although it shows a reduction in the number of the teeth, and variations in the vertebræ. Yet, the facts in connection therewith, which are given in support of the development theory, will bear stronger testimony against it. Such is the *natural* evidence of the quoted observations of M. Roulin, made during a residence of several years in Columbia, relative to the races which had been introduced there in a domesticated state by the early voyagers, and allowed to run wild during the three centuries succeeding. He says: "Wandering all day in the woods, this animal (the hog) has lost nearly all marks of servitude; its ears have become erect, its head broadened and raised on the upper part, and its colour has been rendered permanent." We have here, as the author of the "Vestiges" very truly remarks, "equal proof that the tuskless hog of our farm-yards is the same animal which roams the forest in formidable state and armature, as that the wild boar is the same with the domestic pig."* But what is the bearing of these facts upon his system? They show clearly that, in the recited instance at least, development is not change of species. That a pig, though it may be developed into a fat pig, or a monstrous pig, is, after all, nothing *but* a pig; and that the wild boar and the domestic hog are essentially the same unchanged creature, in different states of being.

Sir Charles Lyell, after an elaborate inquiry into Lamarck's theory of the transmutation of species, which extends from the 34th to the 37th chapters of his "Principles of Geology," sums up as follows:—

"1st. That there is a capacity in all species to accommodate themselves, to a certain extent, to a change of external circumstances, this extent varying greatly according to the species.

"2ndly. When the change of situation which they can endure is great, it is usually attended by some modifications of the form, colour, size, structure, or other particulars; but the mutations thus superinduced are governed by constant laws, and the capability of so varying forms part of the permanent specific character.

"3rdly. Some acquired peculiarity of form, structure, and

* "Vestiges of Creation," p. 157, edit. 1847.

instinct, are transmissible to the offspring; but these consist of such qualities and attributes only as are intimately related to the natural wants and propensities of the species.

"4thly. The entire variation from the original type which any kind of change can produce may usually be effected in a brief period of time, after which no deviation can be made by continuing to alter the circumstances, though ever so gradually; indefinite divergence, either in the way of improvement or deterioration, being prevented, and the least possible excess beyond the defined limits being fatal to the existence of the individual.

"5thly. The intermixture of distinct species is guarded against by the aversion of the individuals composing them to sexual union, or by the sterility of the mule offspring. It does not appear that true hybrid races have ever been perpetuated for several generations, even by the assistance of man; for the cases usually cited relate to the crossings of mules with individuals of pure species, and not to the intermixture of hybrid with hybrid.

"6thly. From the above considerations it appears that species have a real existence in nature; and that each was endowed, at the time of its creation, with the attributes and organization by which it is now distinguished."

I conclude my observations upon this proposition, as I did those upon the last, by a quotation from Baron Cuvier. He says—"I have endeavoured to collect all the ancient documents respecting the forms of animals, and there are none equal to those furnished by the Egyptians, both in regard to their antiquity and their abundance.....I have examined, with the greatest attention, the engraved figures of quadrupeds and birds upon the numerous obelisks brought from Egypt to ancient Rome; and all these figures, one with another, have a perfect resemblance to their intended object, such as they are still in our days.....My learned colleague, M. Geoffroy St Hilaire, convinced of the importance of this research, carefully collected in the tombs and temples of Upper and Lower Egypt as many mummies of animals as he could procure. He has brought home the mummies of cats, ibises, birds of prey, dogs, crocodiles, and the head of a bull;

and after the most attentive and detailed examination, not the smallest difference is to be perceived between these animals and those of the same species which we now see, any more than between human mummies and the skeletons of men of the present day. I am aware that in these I only cite the monuments of two or three thousand years back ; but this is the most remote antiquity to which we can resort in such a case." *

239. (3.) I proceed to the third point—"That as such things as monstrosities and imperfect creatures are sometimes born, it is no great boldness to surmise that a super-adequacy of force in the measure of this under-adequacy might produce a higher order of creatures." Perhaps the absurdity of this position cannot be better illustrated than by putting it in more familiar words, and in the form of an example ; thus : "As woman has sometimes, through fright, or accident, or premature labour, given birth to an abortion, or an imperfectly-formed infant, it is no great boldness to suppose that if she were able to retain her burden a little longer, until it became more perfectly developed, she might sometimes give birth to an angel." I will not, however, dismiss this "point" thus summarily. If the real and supposed cases are analogous, we have a right to ask for evidence of the one something like equal to that which we can produce of the other. Cases of "monstrosities" and "imperfections" are matters of ordinary observation ; but where are the cases of production of "a higher order of creatures," which the "super-adequacy of force" has induced ? In what country have they been witnessed ? or in what pages are they recorded, besides those which bear the records of "development" dreams ? They who can place a visionary *εὐεργετα* in the throne of the Creator, may dream of a super-adequacy of force, thus capable of producing a higher order of creatures from a lower one ; but every analogy in nature, every unsophisticated innate idea implanted in the mind of nature's intelligent interpreter, and all the experience of all men living, or who have ever lived and recorded their experience, will bear evidence against it, and testify that it is *but* a dream.

* "Theory of the Earth," &c., p. 123.

240. (4.) I pass onward to the fourth point—"That we have evidence of the capacity of germs to produce other than their parent forms in those of the simpler thallogens, which, if they fall upon dead or putrid organic matter, will produce fungi,—lichens upon living vegetable, earth, or stones,—and algæ where water is the medium in which they are developed." This is just as forcible an example of wisdom, as if the writer had said, "Every exception proves the rule from which it is an exception to be a false one;" or, "Every quadruped is capable of living in water, because there are some quadrupeds which are amphibious, and can live as well in water as on land." The sporules of the simpler thallogens have their own specific qualities,—endowments which we have noted as evidences of the wisdom and goodness of the Creator,—but they give no evidence of the capacity of germs in general, or even of *any* other germs, to produce other than their parent forms. If the author had pointed out the way of raising a fir-tree from the seeds of *Halidrys soliquosa*, or any terrestrial plant from those of marine *fuci*; or even if he had shown that from the seed of the algæ another species of water-plant would rise, or from that of the lichen, carried into richer and deeper soil, there might be produced another species of plant of bolder and more arboraceous growth, it would have been something to his purpose. This would have accorded with the doctrine of development, which the instance—the constantly recurring, yet ever confined instance—he has given certainly does not.

241. (5.) A similar species of inverted reason to that of which the third scrap of evidence bore witness, characterizes the fifth—"That as a frog produces a tadpole, which, if kept in water without sufficient light, will never become a frog, it is easy to conceive that this order might be reversed, and a tadpole produce a frog." The very acute author should have shown us evidence that a tadpole could produce a tadpole, before he asked us to believe it could produce a frog. This statement is much the same as saying, that as human creatures could produce a human foetus, which, if it never were brought into the world, could never become a man, it is easy to conceive that this order might be reversed, and a foetus produce a fully-developed human creature. The tadpole is but

the embryo of the frog, which has to go through its various stages of development before it attains the image of its parent, or is capable of re-producing its kind. Moreover, our "Philosopher" is physiologically, as well as logically, wrong. He is out in his facts, as well as in his reasoning. The tadpole, though a fish for the time being, breathing by means of gills, is evidently not destined or organized to continue in that state. Besides the *branchial* arteries, which convey the blood to the gills to be oxydized there, it has three small vessels, which do not exist in fish, and which establish a communication between the *branchial* arteries and the *bronchial* veins, in such a manner, that the blood may pass from the former into the latter without going through the filaments of the gills. These communicating vessels are very small in the animal's first (tadpole) state; but it is chiefly by their enlargement that the course of the blood is subsequently altered. There is also, even at first,* a fourth branch, which proceeds to the lungs on either side; but as these organs are not yet developed, this pulmonary artery also is at first of very small size. It is evident, therefore, that the tadpole never was made to be a fish, but was destined to pass through that intermediate, or foetal state, into the one which it usually attains.

242. (6.) I come now to the last portion of evidence the author of the "Vestiges" adduced in support of his theory—the development of the embryo. Here, as in other instances, he has mingled truth with error; and attempted thence to draw a conclusion which the premises will not sustain. In the embryonic, as in every analogous state, every creature has organs adapted to its then present condition; but those organs are subordinate to the formation of others, destined to be used in an after-state, as in the case of the branchial apparatus of the frog, which has just come under our notice. The larva of the winged insect is thus only capable to creep; but if dissected just before its metamorphosis is completed, it will be found to have rudimentary wings in preparation for its higher condition. All living creatures, being composed of cellular tissue, built up into individual life in a similar manner, it is inevitable that in their earliest formation they must in some respects resemble

* See Carpenter's "Animal Physiology," pp. 226, 227.

each other. Thus, the young of the mammal, in its first embryonic state, bears some resemblance to the zoophyte, receiving its nourishment by imbibition. But the zoophyte never rises above that state, while in the foetal mammal, it is only, as it were, the first germ of existence. I grant it, then, to be physiologically true, that the human foetus, at the first stage of its development, is, perhaps, no other than a monad; and that it afterwards, in its upward progress, bears *some* resemblance to the worm, the fish, and the monkey, before it assumes the perfect shape of man. But this gives no evidence in favour of the development theory; for that resemblance is more apparent than real; and in attempting to push it too close, the theorist misses his way, or absurdly mingles truth with error. The nearest approach to worm-shape is the early development of the groove, in which the spinal cord is enclosed—that seat of nerve or brain power which is the distinguishing characteristic of vertebrate animals, and especially of man. At first, the cells form two ridges, with a furrow or groove between them. These ridges gradually rise up, and approach one another, and at last meet on the central line, so as to form a complete tube, within which the spinal cord and brain begin to be developed. But where, if the foetus be then only a worm, are its organs of locomotion—those rings and contractile bands which are always possessed by annalida? The absence of these, while its form is cylindrical, and it has no limbs, shows that it is not intended for a worm, but is something in preparation for a higher state of existence. Again, the branchial apparatus, in possessing which the human foetus afterwards bears *some* resemblance to a fish, is but, like the branchial apparatus of the tadpole, a temporary formation, to answer a temporary purpose, until a higher state of development is attained. And as to the resemblance to the monkey, it is a strained conceit altogether. The great characteristic of the human species is the brain. The brain of the fish bears an *average* proportion to the spinal cord of two to one; that of the bird of three to one; that of the mammal of four to one; that of the human creature of twenty-three to one. It is to the brain, then, we must look for the peculiar characteristics of the human creature; and what in this respect is the progress of embryo development?

It is stated by Professor Retzius, that the three portions of the cerebral hemisphere in the human embryo are developed, not at once, but at three separate periods.* In the first of these periods, which extends from the second to the third month, the anterior lobes are formed; during the second period, which is comprised between the end of the third and the beginning of the fifth month, the middle lobes are formed; after this, therefore, last of all, the posterior lobes are developed.†

Thus, then, we see that the front lobe of the brain, the peculiar characteristic of the human creature, and which all Phrenologists—including the authorities appealed to by the author of the “Vestiges”—have agreed to regard as the seat of intellect, is the earliest developed; and the human fœtus has the distinguishing mark of humanity stamped upon it, even before it possesses legs, arms, and hands, in common with the monkey. How strange an example of the Lamareckian dream of development!

243. I have thus passed through all the evidences which the author of the “Vestiges” appears to rely upon for the substantiation of his theory. If I have omitted to notice anything on which he intended to build, it is not because I have shunned the questions involved therein, but because it has simply escaped my observation; for, confident in the truth of that religion, which, with me, is *not a mere traditionary inheritance*, but a *deliberate adoption*, I have anxiously sought for *everything* that could bear evidence against it, in order that I might give it the most diligent investigation. And what is the verdict I must pronounce upon the book in question? It is, that, in *every instance*, either its so-called facts are mis-stated, or their evidence misapplied—that, in *every instance*, either its premises are false, or its inferences illegitimate.

244. I will now, therefore, dismiss this strange work, and turn to another, in some respects even more strange—the reveries of Atkinson and Martineau, respecting “Man’s Nature and Development.” Here the term “development,” for the most part, gives place to a fresh one; but it is just the same nonentity which is presented to us under another name. The

* *Arch. de Anat. Gen. et de Phys. Janvier, 1846, p. 24.*

† Supplement to Müller’s “Elements of Physiology,” (1848,) p. 107.

word development, indeed, is sometimes used in connection with causation, as, where Atkinson remarks—"The mind of man, the instincts of animals, the sympathies (so to speak) of plants, and the properties of stones, are results of material development; that development itself being a result of the properties of matter, and the inherent cause or principle which is the basis of matter."* A fresh term, however, if not a fresh system, is mostly uplifted to attract the admiring gaze of those who find the existence of an intelligent and presiding Deity a matter inconvenient to believe in, or not exactly suited to their taste; and instead of CHANCE, or NECESSITY, or NATURE, or DEVELOPMENT,—the former idols of the Atheists,—we are taught to admire, though not to worship, LAW—"infinite and eternal omnipresent LAW!" This idea, this chimera, or phantasy, is put forth as the great First Cause, the originator and upholder of all things. Thus Atkinson tells us: "Fitness in art argues design; but in nature only points to a *Law*; to the form and nature of that which *is*, and of which *design* is a mere inter-reflexion."† The man who can thus dogmatize and point to his own ideal cause as *that which is*, of which *design* is only an inter-reflexion, should, in condescension to our ignorance, and those antagonistic feelings which are a part of *our* "development," have gone a little further in his teaching; and, if he wishes us to believe him, have told us also *how* and *why* it is. There have been occasions in the history of our world, when dogmatic statements have been just as authoritatively propounded; and man has been required to believe them, on the authority of the propounder, without any appeal to his reasoning faculties, or any attempt to convince his understanding, by logical proof, as to the *how* or *why* they should be so. Yet, on these occasions, the propounder showed his credentials by bending nature to his will, and placing in abeyance its ordinary laws; a class of evidences by which Mr Atkinson will not attempt to influence our convictions, since he tells us, with equal coolness and confidence—"There never has been, or can be, any miracle, or interruption of the laws of nature."

* "Man's Nature and Development," by Atkinson and Martineau, p. 248.

† Ibid. p. 229.

245. The pupil, however, seems to surpass her oracle, either in boldness of thought or in contempt of the world's opinions. Miss Martineau says: "There is no theory of a God; of an author of nature; of an origin of the universe; which is not utterly repugnant to my faculties; which is not (to my feelings) so irreverent as to make me blush; so misleading as to make me mourn.....When we have finally dismissed all notion of subjection to a supreme lawless will,—all the perplexing notions about sin and responsibility, and arbitrary reward and punishment,—and stand free to see where we are, and study our own nature, and recognize our own conditions,—the relief is like coming out of a cave full of painted shadows, under the free sky, with the earth open around us to the horizon. What a new perception we obtain of 'the beauty of holiness'—the loveliness of a healthful moral condition,—accordant with the laws of nature, and not with the requisitions of theology! What a new sense of reverence awakens in us, when, discarding the image of a Creator bringing the universe out of nothing, we clearly perceive that *the very conception of origin is too great for us*, and that deeper and deeper down in the abysses of time, farther and farther away in the vistas of the ages, all was still what we see it now, a system of ever-working forces, producing forms, uniform in certain lines, and largely various in the whole, and all under the operation of immutable LAW!" *

246. Another brief quotation or two will, perhaps, bring this phantom "*Law*," in all its phases, as clearly before us as it is before those who have raised it, for whom, confessedly, "*the very conception is too great.*" Mr Atkinson says: "Knowledge recognizes universal law, and that nothing can be free or by chance, no, not even God, but that God is the substance of law and origin of all things."† Again, (pp. 227, 228,) "They (those called Atheists) deny that Nature which exhibits forms and ends as determined and necessary conse-

* "Man's Nature and Developement," by Atkinson and Martineau, pp. 217—219.

† Miss Martineau subsequently called her tutor to account for using the term "God." He explained by saying, "I do not say that there is no God, but that it is extravagant and irreverent to imagine that cause a PERSON."

quences of what is, is designed, or could have been designed ; since we must, after all, go back to a fundamental cause which is not designed, but the cause of the designer." Once more, (p. 228,) "Mr Newman says, very properly, 'a God uncaused, and existing from eternity, is to the full as incomprehensible as a world uncaused and existing from eternity.'"

247. LAW, then, it would appear—a sort of developing law, according to the notions of Mr Atkinson and Miss Martineau, (though it may be as "repugnant" to the faculties of others as the idea of a God is to theirs)—is the great author and upholder of all things ; and that, in the strictest sense, a *Law without a Legislator, and operating, too, before the existence of that to which it relates*. Moreover, if the last quotations I have made, and which seem to throw some light on their crude notions, mean anything at all, they reject the idea of a necessarily existent and independent Designer ; because they conceive that a God uncaused and existing from eternity, is as incomprehensible as a world uncaused and existing from eternity ; and that, consequently, they must, after all, go back to a further fundamental cause which is not designed, but the cause of the Designer—even almighty LAW ; and consequently they may as well dispense with the Designer altogether.

248. Such are the absurdities into which erring creatures fall, in consequence of not separating, in their vague conceptions, things which are essentially distinct—in consequence of their not regarding the difference between finite and Infinite ! This, indeed, appears to be the main fundamental error of the Atheist. Twice in his discussion with Townley, Holyoake built upon the same quicksand ; and in his "Logic of Death" we have a similar idea, though not so fully expressed, where he says, "I am driven to the conclusion, that the great aggregate of matter which we call Nature is eternal, because we are unable to conceive a state of things when nothing was. There must always have been something, or there could be nothing now. This the dullest feel. Hence we arrive at the idea of the *eternity of matter*. And in the eternity of matter we are assured of the self-existence of matter ; and self-existence is the most majestic of attributes, and includes all others."*

* "Logic of Death," pp. 9, 10.

249. "To most persons," says Professor Whewell, "it appears that the mere existence of a law connecting and governing any class of phenomena, implies a presiding intelligence, which has preconceived and established the law. When events are regulated by precise rules of time and space, of number and measure, men conceive these to be the evidence of thought and mind, even without discovering in the rules any peculiar adaptations, or without supposing their purpose to be known." * Yet here, in a universe whose adaptations are seen, felt, and acknowledged, we are requested to believe that all has resulted from a LAW, by no intelligence contrived,—an irresistible unintelligent impulse, of whose "fit" operations design is only an "inter-reflexion." I will pass that by, however, and combat the fallacy upon other grounds—grounds which I conceive to be less difficult and more conclusive.

250. One truth, and perhaps one only, in relation to this subject, is thoroughly demonstrative, and cannot be denied without involving a palpable contradiction. It is the fundamental truth on which Holyoake, as quoted above, built so erroneous a conclusion—the naked proposition that "*something has existed from eternity*; and is therefore *necessarily existent*." It is demonstrably clear that something has existed for ever; for, otherwise, nothing could come into existence. It could not be made by another, there being no other to make it; and it could not make itself, itself not being in existence; for, to make a thing to be, is to *do something*; and that which is not in being can do nothing. But what are the conclusions to be drawn from the fact thus demonstrably certain, that *something* has existed from eternity? I have already shown, in my first Chapter, that it could not be matter.† Will this phantom Law, then,—this god of Atkinson and Martineau's idolatry,—fill up the void which necessarily requires that something should have previously existed, to have originated the variety of things which now exist? Let us see.

251. It is a legitimate inference, from the fact thus universally allowed, that this something, which hath ever been, *hath been ever of itself*. Either something hath been of itself, or all

* Whewell's "Bridgewater Treatise," p. 255, of 7th edition.

† Sections 29 to 33.

things that are, or ever have been, were, without exception, from another. But it is impossible that all things, without exception, should have been from another; for, besides all things, there is not another from whom they *could* be. There is no rest for the mind, no avoidance of reasoning in a circle, unless we allow that something, or some one, was of itself, by which all else was made, brought forth, or developed.

252. And THAT something, or some one, must have been NECESSARILY, or have so existed that it is impossible it ever should *not* have been; because, as already shown, if it had not been, it could never have begun to be; and it is, therefore, necessary that it should have always been. And can these attributes appertain to an unintelligent and visionary nonentity, called Law? Are laws causes? or does their very regularity denote the absence of a lawgiver? Does *Law* exist of necessity? or is it impossible to conceive that *it* should ever not have been?

253. We have seen, that whatsoever is thus *necessarily* existent, must exist unchanged in all times and in all places; since the same necessity which calls for its existence in one point of eternity and space, applies with equal force to every other point.* And can this Law be said to exist thus unchanged and unchanging, whose productions are ever varied, ever varying, and to which the theory of development is attached as indicating the chief mode of its operations?

254. Further, whatsoever *is*, necessarily and of itself, is not only not changeable or imperfect, but incapable of becoming *more perfect*; for what is of itself necessarily, must have whatsoever belongs to it all at once; since it depends on no other for addition, neither can suffer diminution by any other, or it could not possess its being and attributes by necessity or from itself. Yet the Atheist's imagined "Law" is the very contrary of this. It is the law of development, constantly attaining a greater perfection—accompaniments of its visionary being, which sufficiently demonstrate that it *cannot* be a necessarily existent cause, from which all other things have proceeded.

255. Yet further: whatever is of itself, or necessarily existent, is more excellent than that which is not of itself; for

* Section 52.

whatever is not of itself, hath no excellence in it but what has been derived from that which is of itself,—while that which is of itself, possesses both its own excellences and those it has imparted. For nothing can be efficiently caused or produced by that which hath not in it at least equal, if not greater, perfection; because nothing can give what it hath not, or produce an effect possessing that which *it* hath not (either latent or in action), and is, therefore, incapable of imparting. To conceive, then, that LAW possesses all the excellences of all things that are *not* self-existent, and other excellences—as self-existence and eternity—superadded, would be to make LAW a GOD; since it must in this case possess *personality, life, and intelligence*, among other excellences of finite creatures. Or to conceive, on the other hand, of its having imparted those excellences without possessing them, is to conceive an absolute impossibility; since that which it did not possess, it could not impart to others: and, not possessing them, it could not be that necessarily and self-existent *something* by which all other things were produced.

256. Moreover, whatsoever is necessarily existent—the same necessity applying equally to every point of eternity and space—must needs be absolutely infinite, immense, eternal, and immutable—attributes which belong not to mere LAW, but to GOD. How then, and why, is “a God uncaused and existing from eternity, as incomprehensible as a world uncaused and existing from eternity,” when the one can be shown to be necessary, and the other to be impossible? And what need have we to “go back to a cause of the Designer,” when that Designer is thus shown to be the only possible Infinite and Necessarily Existent Cause?

257. I might pursue this chimera LAW still further, and ask, by what presiding cause IT was ordained? who fixed ITS principles, and guides ITS operations? or who was the “producing cause of this producer?” The notion is a far more baseless one than what Miss Martineau calls “the baseless notion of a single conscious Being, outside of nature—Himself unaccounted for, and not Himself accounting for nature.” Though finite cannot comprehend infinitude, or gaze on the Ineffable in all His boundless glory, yet it can apprehend somewhat of His nature and His being; as the greater can be *touched* though

not *encompassed* by the less. The being of a God *can be*, and *is*, accounted for; and His existence *will* account for all things finite. But for the existence of this phantom LAW, irrespective of a Divine Legislator, no one has yet attempted to account. Its propounders are contented with knowing nothing!—"the very conception of origin being too great for them!" And this is the return they offer in exchange for giving up all we know, and all that we conceive we know.

258. In conclusion: if this phantom LAW existed by unintelligent necessity, it must, just as necessity itself, operate alike in all times and all places. The very facts of change and development, which are continually passing under our notice, are an evidence that—if such a principle as LAW is in operation at all—its powers and modes of operation were arbitrarily fixed by One who had objects in view, which objects that pervading force called Law was both designed and destined to accomplish. A Law beyond this, a Law which is uncaused, or the cause of causes, and yet is changing and ever varied in its operations, is a blank absurdity. And yet, it seems,—making the less to bear the greater,—the perverted intellect of man can dream that "fitness in art argues design, in nature ONLY Law,"—which Law is *the cause of itself*, or the result of NOTHING!!

CHAPTER X.

INDUCTION—NATURAL SELECTION.

259. WHEN the earlier editions of this work were published, there seemed no reason to anticipate that the development theory would, in any form, again occupy a large share of public attention. But the Rev. Baden Powell, whose tendency to scepticism had, previously, only been *suspected*, published, subsequently to the appearance of some of the Burnett Treatises, of which he was one of the adjudicators, his "Essays on the

Inductive Philosophy," &c. In these he did his best to substantiate the figments of "development" and "law;" and to combine them both with a profession of Christianity.

It is but proper charity to deal tenderly with the aberrations of one who is recently dead, notwithstanding that he has in the too notorious "Essays and Reviews" repeated most of his sceptical opinions in nearly as offensive a form. The unnatural bent of mind, which led him constantly astray, seemed to be chiefly an undue estimate of the results of the inductive process of proof. He appeared to claim for it a rank side by side with mathematical demonstration: whereas, though "inductive philosophy" has made vast additions to our knowledge, it never can insure the attainment of more than a high degree of probability; and seldom reaches the same degree of moral certainty as is attached to well-accredited testimony. For, in its first stage—the accumulation of observed phenomena—it depends chiefly *upon* testimony; and in its second and third—the development of some hypothesis for their explanation, and the correction or confirmation of that hypothesis, by collating its results with the whole series of observations—it depends upon the sound judgment and mental power of the person who undertakes it. This is the case when its generalizations are large, and every step in the process is carefully and correctly taken. But when unskilfully used, or resorted to for the purpose of establishing a foregone conclusion, it almost inevitably leads to error. No theory can take rank with *certainly established facts*, or the deductions of pure science, until it can be shown to be necessarily true, i. e. that the contrary of it involves a self-contradiction. Then it comes within the range of actual demonstration, and is "inductive" no longer.

The hypotheses which Mr Powell, by very faulty induction, arrived at in his treatises above named, and again put forth in the "Essays and Reviews," appear to be:—1st. That order is the only evidence of the existence of a Deity which the universe affords. 2nd. That there never has been a "*creation*," in the ordinary acceptation of the word: but that all things proceeded in the way of orderly evolution or "development" from a nebulous haze, according to fixed and perma-

nent laws, originally ordained by God. Whether he conceived God to have been the Creator of the nebulous haze which contained the germs of all things, as well as the ordainer of the laws under which its operations were carried on, cannot clearly be gathered from his pages. The intimation (Essays, p. 439, 1st edit.) that "Physical Philosophy always supposes at least some elements in existence, and cannot investigate or conceive a condition antecedent to nature, or the case of its actual commencement;" and again (p. 445), that "the idea of a beginning of nature in time is one which no physical philosophy can teach us;" would seem to lead to a contrary opinion. One thing, however, appears clear, that God, according to his notions, is to be regarded simply as a *quiescent* Being, who, *if he be omnipotent*, has left his agent, Law, to superintend all the operations of nature.

260. And what are the facts and phenomena from which the "Inductive Philosophy" has obtained results or conclusions so opposite to those to which we have found all nature give its accrediting testimony? Omitting some few, which have been already noticed, when the "Vestiges" was under consideration, all that have any appearance of cogency may be summed up under two heads. 1st. Professor Owen's discovery and demonstration of the homologous nature of the vertebrate skeleton. 2nd. Some new theories associated, in Mr Powell's generalization, with the received and accredited facts and phenomena connected with geological formations: and those theories, be it observed, not founded upon what may be strictly called facts and phenomena, but upon the *absence* of them.

Of Professor Owen's discoveries, of which so much has been said by our opponents, I shall make important use ere this chapter closes. The cause of religious truth has much to thank him for, as will be seen ere long. At present I shall take but one, and that not the most important view, of the result of his labours. The fact that the earliest vertebrate creature was essentially a type of man, gives *primâ facie* evidence that the laws of nature were ordained by the same Being who instituted the types and foreshadowing ordinances of the Levitical law. And the legitimate inference to be obtained from Owen's discovery is that God works in an orderly

manner, often by steps which appear to us far distant from each other; and sometimes makes a lesser being or event an intimation, prophecy, or type of something greater yet to come. If this will comport with the belief in a *quiescent* god, it will at least equally comport with the belief in a living and active one; and bear testimony to a Creator as much as to a Legislator.* We are therefore thrown back upon Mr Powell's new Geological theories, for all the evidence he can bring forward in favour of his new version of Mr Atkinson's "Omnipotent, Omnipresent Law."

261. To make these theories clearly understood I must first state his "case." Deeply imbedded in the crust of the earth, near to what may be termed its foundations (the granite and

* "Not less extraordinary, but greatly more sound in their application, are the views of Professor Owen, supreme in his own special walk as a comparative Anatomist. We find him recognizing man as exemplifying in his structure the perfection of that type in which from the earliest ages nature had been working with reference to some future development, and as, therefore, a foreordained existence. 'The recognition of an ideal exemplar for the vertebrated animals proves,' he says, 'that the knowledge of such a being as man must have existed before man appeared. For the Divine mind that planned the archetype also foreknew all its modifications. The archetypal idea was manifested in the flesh under divers modifications upon this planet long prior to the existence of those animal species that actually exemplify it.' So far Owen. And not less wonderful is the conclusion at which Agassiz has arrived, after a survey of the geological existences more extended and minute, in at least the ichthyic department, than that of any other man. 'It is evident,' we find him saying, in the conclusion of his recent work, 'The Principles of Zoology,' 'that there is a manifest progress in the succession of beings on the surface of the earth. This progress consists in an increasing similarity to the living fauna, and among the vertebrates, especially in their increasing resemblance to man. But this connection is not the consequence of a direct lineage between the faunas of different ages. There is nothing like parental descent connecting them. The fishes of the Palæozoic age are in no respect the ancestors of the reptiles of the secondary age, nor does man descend from the mammals which preceded him in the Tertiary age. The link by which they are connected is of a higher and immaterial nature; and their connection is to be sought in the view of the Creator himself, whose aim in forming the earth, in allowing it to undergo the successive changes which Geology has pointed out, and in creating successively all the different types of animals which have passed away, *was to introduce man upon the surface of our globe: MAN IS THE END TOWARDS WHICH ALL THE ANIMAL CREATION HAS TENDED FROM THE FIRST APPEARANCE OF THE PALÆOZOIC FISHES.*' These surely are extraordinary deductions."—*Miller's "Testimony of the Rocks,"* Lecture V.

other rocks of igneous origin), are to be found certain fossil remains of animal and vegetable creatures. They are chiefly, if not universally, aquatic; and of what may be termed the humbler classes,—more rudimentary, and less complicated in their structure, than the creatures afterwards existing. Upon these there lies a superincumbent mass of material, varying in thickness in different parts of the earth, but often reaching to a depth of several thousand feet. Then comes imbedded another quantity of fossil remains, further advanced in organization, and apparently adapted to a different condition of the earth. On these lies another mass of rock, from which fossils are absent: and on this another stratum, containing organic remains; and so on till we come up to the surface of the earth.

262. From these “facts” Mr Powell argues that there are gaps between the different successive formations which would allow time enough for the development of the creatures whose remains are found in the lower strata, into those which are found in the next above where fossils are discovered: and thus on till we come to the surface of the earth and its present inhabitants. And he contends that instead of believing in such breaks in the chain of order and continuity, as successive catastrophes and creations would involve, we ought rather to conclude, that the process of orderly evolution was constantly going on; but that, in each successive and enormous “break,” circumstances were such as did not admit of the preservation of any remains of those intermediate creatures, which would have shown the progress of transmutation from the one race into the other.* The hypothesis therefore which he seeks to substantiate is, that there have been no successive creations (if there ever was any

* “If an interval of unknown and incalculable length intervened between two recognizable formations, and during all this vast time circumstances did not allow the imbedding of any characteristic exuviae, it would be utterly vain and futile to assert that there was necessarily any breach whatever of the *law of continuity*, or to affirm that during the whole of that enormous period—of which we are, from the conditions, precluded from knowing anything—all the species of the earlier epoch were not continuously existing and as slowly changing (by whatever means or law), to others more and more different, along with corresponding changes in physical conditions, until, at the period when things were such that remains were again deposited, the whole character of the *fauna* had changed in the manner observed.”—Powell’s “*Essays*,” pp. 345, 346, 1st edit.

creation at all), but that all living creatures, animal and vegetable, have proceeded from previous ones in the ordinary way of propagation,—the more complex being developed (*à la* the “Vestiges”) out of the more rudimentary.

This strange induction, however, which is all that can be brought forward to substantiate the system, is just *begging* the question in dispute. That question is simply one between an active and creating God, and an unintelligent developing Law! The “Inductive Philosopher” modestly asks us to reason from the absence of facts as though they were present; or to conclude that absence and presence are tantamount to the same; and because if they were present they would go far to establishing his views, to believe that those views are equally established because they are absent. If we might be allowed to fill up every hiatus in the records of the earth’s crust with just what organic remains we please, there is no dream, however preposterous, but what might be substantiated by its stony tablets. The well-marked impression of the foot of a somewhat gigantic tortoise, observed by Mr Abraham in the Potsdam sandstone, the lowest fossiliferous rock of the silurian series in North America,—a place where, according to Vestigian theories, only “rudimentary” creatures should be found,—might, since the tortoise is good for human food, be alleged as a proof that, at a previous period, gigantic human creatures had been denizens of earth; but as the “stratum” they inhabited had been crystallized by igneous action into granite, “circumstances were not such as to admit of their remains being preserved.” Or it might be argued, that the immense uninhabited depth of Red Sandstone, superimposed upon strata crowded with organic remains, was a proof that, during *that* long period, the earth had been inhabited by moral and responsible beings, who, having undergone the process of *resurrection*, had left no “remains” to be submitted to our examination.

The “Inductive Philosopher” would doubtless have scorned or pitied any theorist who should seriously put forth such views as these, yet either of these “inductions” is even more legitimate than his own; because they are not contradicted, as his really are, by the very records appealed to as authority.

For the discovery of Chelonian footsteps in the lowest strata where life has been exhibited,* is not merely *evidence*, but demonstrative *proof*; that the mass of superincumbent and uninhabited rocks *could not*, under any circumstances, have exhibited the gradual steps by which, in an immense series of years, the sponge or the mollusc was transmuted into the tortoise. And the discovery of reptile footsteps and remains in the Old Red Sandstone, and the lower carboniferous strata,† is also a sufficient demonstration that the immense rocks *superimposed upon them*, could not, under any circumstances, have exhibited the gradual steps by which, in a long interval of time, the fish was *transmuted* into the reptile.

However baseless those theories may be reckoned which have *no evidence* to support them, at least *equally* baseless must those “inductions” be considered, which are directly contrary to the evidence that is “graven as with a pen of iron in the rock for ever.” And such are the “inductions” in exchange for which we are asked to make a sacrifice of our consolations and our hopes—to give up our belief in a Deity whose eye watches over us, and whose ear is open to our cry.

263. Were the condition of the earth's crust, as stated by Mr Powell (of whose statements a digest is given in the “case” above), perfectly correct, still the inference would appear a natural one—that there have been a number of successive creations and catastrophes; that, in accordance with successive conditions of the earth, God has *created* creatures who could live and enjoy life upon its surface. That inference has been adopted by nearly all *eminent* geologists, Sir Charles Lyell being the great exception. The labours of M.M. D'Orbigny and Eli de Beaumont, in the examination of the various sections of the earth's crust, and of the fossilized organisms each section contains, have supplied abundant evidence that this inference is a sound one. And their examination of the broken and upheaved strata at the bases of mountains, have given the crowning proof of its soundness by indicating the cause of those destructive catastrophes—the throwing up of our various

* See Postscript to Lyell's “Manual of Elementary Geology, 4th edition.”

† Ibid.

mountain chains.* Thus by a wide, a patient, and a clear induction the reality of those destructive catastrophes has been rendered, perhaps, as much a certainty as the "inductive" process can attain to. And the re-appearance of living organisms in such multitudes after those destructions, gives evidence of new creations a thousand times as strong as the vain dreams and theories of men can give for the development of all existing creatures out of one or more primeval forms.

Mr Powell, however, has scarcely given a fair statement of that which really exists. Sedgwick, Murchison, Forbes, and a host of other unquestionable *authorities* in geological science, all deny the merely *rudimentary* nature of the earliest *fauna*, representing them rather as better adapted to the then condition of the earth, than as less complex in their structure than those which succeeded them. Sir C. Lyell, moreover, in the 4th edition of his "Manual of Elementary Geology," has given, as already intimated, indisputable evidence of the existence of higher races coeval with the earliest living creatures whose remains have yet been discovered.

264. Subsequently to the publication of Mr Powell's Essays, another advocate for development stepped into the field, in the person of Mr Charles Darwin (formerly Naturalist to Her Majesty's ship *Beagle*), whose grandfather had laboured unsuccessfully in the same vocation.

How delusive the inductive process may become to an unphilosophic mind, when used to support a foregone conclusion, could not well be more clearly manifest than it is in Mr Darwin's thirteen years' labours. By twisted evidence, the natural tendency of which is in a contrary direction,—by arguments which, when laid bare, and divested of their multifarious and *confusing* illustrations, are too inconclusive to carry conviction to the weakest mind,—and by the imagination of facts and circumstances for which *no* evidence can be found,—he unsuccessfully attempts to substantiate the doctrine of development, by showing the manner in which the transmutation of species *may* be accomplished. And his foolish book is characterized

* An admirable digest of the valuable labours of these eminent geologists will be found in the volume on geology in Dr Lardner's "Museum of Science and Art," published by Walton and Maberly.

by Professor Powell, in the "Essays and Reviews," as "Mr Darwin's masterly volume on the origin of species by the Law of natural selection—which now substantiates on undeniable grounds the very principle so long denounced by the first naturalists*—the origination of new species by natural causes: a work which must soon bring about an entire revolution of opinion in favour of the grand principle of the self-evolving powers of nature."†

265. There is so much resemblance between Mr Darwin's conceits and those put forth in the "Vestiges of Creation," that his book may be said to be effectually answered in the preceding chapters; and I cannot take the reader over the same course of argument a second time. As, however, so much is attempted to be made of the work, I must not pass it by without noticing all the *new* evidence it gives, or attempts to give, of "nature's self-evolving powers;" and showing the true bearing of that evidence on the question in hand.

Mr Darwin's views, as elaborated in his volume, are somewhat fairly and clearly expressed in the following passage, from the pen of Mr George Maw, in the *Zoologist* for July, 1861:—

"From certain facts," he observed, "regarding the distribution of the inhabitants of South America, and the relations of the present to the past inhabitants of that continent, he has been led, through a course of observation and reflection, to the conclusion that organic bodies now individualized under the term 'species' were not independently created, but are the descendants of a few much simpler forms, modified and multiplied under circumstances parallel with those now existing;

* How *undeniable* let Professor Huxley answer. He at least will not be suspected of undue leaning to Theological views. In his address at the annual meeting of the Geological Society, 1862, he says:—"Obviously, if the earliest fossiliferous rocks now known are coeval with the commencement of life, and if their contents give us any just conception of the nature and the extent of the earliest fauna and flora, the insignificant amount of modification which can be demonstrated to have taken place in any one group of animals or plants, is *quite incompatible* with the hypothesis that all living forms are the results of a necessary process of progressive development, entirely comprised within the time represented by the fossiliferous rocks."

† Essays and Reviews. Essay 3.

that there has been no break between the present and the geological epoch, during which the organic forms with which we are now surrounded were in process of manufacture [evolution]; that this advancement and modification indirectly result from the power of organic reproduction, being vastly in excess of the means of sustenance, which, in the resulting competition for existence, give [to] variations from the normal type possessing any profitable quality in the economy of life, the advantage, both as to existence, and power of reproduction; the quality of variability being inherited, and the steps of improved variation, accumulated, through successive generations, produce, as a result, the multiplication and advancement of species. Intermediate links, or those that are too nearly resembling their brethren to settle down into *distinct* arenas of nature, strive with them for the mastery; the weaker becoming extinguished, those that remain appropriating subdivisions of the district of nature occupied by their common parent, according to their new gradations of habit and functions; and the special qualities of each, being reacted on by their specialized habits of life, become intensified, first into specific differences, and subsequently, by throwing off series upon series of varying descendants, take higher rank in what Mr Darwin says is the genealogical order of nature.*

If this passage is not quite intelligible to the reader (though embodying so much), I hope it will become so as we go on. I have preferred to give the digest in other language than my own; and that in the most favourable form in which I have seen it stated. Still in order to manifest clearly the *object* of Mr Darwin, it will be better to refer to the concluding portion of the volume, in which he sums up his own case:—

“All the members of whole classes can be connected together by chains of affinities, and all can be classified, on the same principle, in groups subordinate to groups. Fossil remains sometimes tend to fill up wide intervals between existing orders. Organs in a rudimentary condition plainly show that an early progenitor had the organ in a fully developed state; and this in some instances necessarily implies an enormous amount of

* Zoologist, July, 1861, p. 7580.

modification in the descendants. Throughout whole classes various structures are formed on the same pattern, and at an embryonic age the species closely resemble each other. Therefore I cannot doubt that the theory of descent with modification embraces all members of the same class. I believe that animals have descended from *at most* only four or five progenitors, and plants from an equal or lesser number. Analogy would lead me one step further, namely, to the belief that all animals and plants have descended from some *one* prototype. But analogy may be a deceitful guide. Nevertheless all living things have much in common, in their chemical composition, their germinal vesicles, their cellular structure, and their laws of growth and reproduction..... Therefore I should infer from analogy that all the organic beings which have ever lived on this earth have descended from some one primordial into which life was first breathed by the Creator." *

266. There is a sad deficiency of clear consecutive reasoning in Mr Darwin's work, which renders it a much easier task to show the folly of his assumptions, and the illogical process by which he obtains them, than to manifest the falsehood of the conclusions at which he endeavours to arrive. I think, however, we may sum up the whole *arguments* of the volume under the following propositions:—

1. That the general resemblance between vegetable and animated creatures give evidence of their origin from some common parent.

2. That their differences result from a constant tendency to variety under the operation of a principle which is termed "Natural Selection."

3. That the existence of aborted or rudimentary organs is a clear proof of genealogical descent from some creature who possessed that organ in a fully developed condition.

4. That the morphological resemblances of whole classes prove, at least, that those whole classes are lineally connected with a common prototype.

267. I. As evidence on behalf of the theory cited in the first of these propositions, Mr Darwin adduces the geological

* "Origin of Species," 5th thousand, p. 484.

succession of the same types in the same geographical areas, of which all the direct evidence he supplies is the resemblances between the present fauna and flora of South America and Australia, and those of the same places in the tertiary period. He also instances connections of affinity between the species of the successive geological formations; parallelisms in groups; and those resemblances which have of necessity led to the grouping of species into classes and orders, as, in some sort, related to each other. Also the difficulties found by naturalists in accurately determining what really constitutes distinct species.

Here, however, we have the results of anything but a wide induction, and, also, the most limited generalization. First, the most imperfectly examined pages of the geological record, South America and Australia, are examined for evidence; and even they will only give it as regards the tertiary period and the present, leaving the preceding periods out of the question. But Europe, where the stony record has been more fully investigated, will, if it be asked, give evidence of a contrary kind. It has, at present, no creatures to supply the place of its former chief inhabitants, the marsupials and the pachyderms of old. On the connections of affinity between creatures past and present, and their gradual advance upward, as the altered condition of the earth permitted, enough, perhaps, has been already said, as it is but the Vestigian theory reproduced; but we shall recur to it again ere this chapter closes. And as to parallelisms, and the necessary groupings of creatures into classes and orders, it does but show a oneness in creation as the work of one presiding Intelligence; for it is seen just as much in crystallization, and in the chemical elements of the world itself, as in the living creatures it sustains; and therefore can be no evidence of genealogical relationship. Nay, it is more fully displayed in the spangled heavens around us, where groups of all varieties in form and number, parallel groupings, laws of affinity, and "groups subordinate to groups," are all displayed in the relations of satellites to their planets, and planets and comets to their suns, and suns to constellations, and constellations to galaxies, and each to one another.

267 *a.* II. To substantiate the theory embodied in the second proposition is the great object of Mr Darwin's work; and therefore all his arguments tend in that direction. But the especial evidence he adduces is—That man has greatly altered both plants and animals under domestication by the “selection” of varying or improved types for propagation:—That the power of organic reproduction is vastly in excess of the means of sustenance, which gives advantage in the struggle for existence, to improved varieties; and by a process of *natural* “selection” enables the steps of improved variation to accumulate till they form a distinct species:—and that the extinction of species never to re-appear, but to be replaced with an allied form more advanced in organization, and the progressive divergence in character between recent members of a group, as compared with its species during the geological periods, are illustrations of this process.

Respecting improvements and variations under domestication, sufficient has been said in the last chapter. The facts are admitted, but not the inferences drawn from them. We have not, however, the slightest direct proof that *nature* thus selects varying or improved types for propagation; and to say that the process is so slow that no divergence of any great amount could be observed in the five or six thousand years over which our experience extends, is simply begging the question. Again, the struggle for existence which Mr Darwin so graphically portrays, is chiefly an imaginary one. The various orders of creatures are so harmoniously adapted the one to the other, as to keep each other constantly in check, so that the world is not yet overrun with animals; and in the excessive reproduction of the vegetable world, innumerable animated creatures of the granivorous class find their food. Moreover, if there were this constant struggle for life every slightly improved variety would have an advantage over the type from which it diverged: so that instead of the distinctions which are called special (marking distinct species), we should have an almost infinite series of homologous creatures, diverging from each other by insensible degrees. For Mr Darwin has shown no reason whatever why the intermediate links should all die off, and leave only the distinctly-marked varieties, the

“*advantage*” they possessed over their fellows being certainly no reason for such a result. The case is, therefore, not only unproven; but this vaunted principle of “natural selection” is itself only imaginary, and has not a tittle of evidence to substantiate its claim.

The extinction of species never to reappear, but to be supplied by allied forms more advanced in organization, and the progressive divergence in character between recent members of a group and their congeners during the geological periods, are facts which a true and wide induction seems to have made evident. But parallel with these we have also the extinction of species and genera to have *no* after representatives, which leads us direct to a true solution of the difficulty over which Mr Darwin endeavours to throw a veil of mystery. M. D’Orbigny, whose investigations have perhaps been more minute and laborious than those of any other geologist, since he has examined eighteen thousand species of radiata and mollusca alone, shows that, in the twenty-nine past eras, a part only of the genera of each preceding one reappeared; the majority of the organisms being entirely new; and the species, except only one or two per cent., having, with the remaining genera, been entirely blotted out from the book of life. To account for the absence of connecting links between the creatures of these successive eras, Mr Darwin, following Professor Powell, falls back upon “the imperfection of the geological record,” and “the imperfect examination to which it has yet been submitted.” He tacitly confesses, however, that his conclusion was foregone, in the admission (p. 362), “I do not pretend that I should ever have suspected how poor a record of the mutations of life the best-preserved geological sections presented, had not the difficulty of not discovering innumerable transitional links between the species which appeared at the commencement and close of each formation pressed so hardly on my theory.” Mr Darwin’s theory, then, it appears, must not be considered faulty because nature gives no evidence to substantiate it; but the record is at fault because it will not support his theory! M.M. D’Orbigny and Eli de Beaumont, however, as has been already intimated, not only show that the *primâ facie* evidence of destructive

catastrophes by which earlier organisms were swept away, leads to a correct conclusion—accounting for the facts by destructions and new creations. They trace by demonstrative steps the cause of those catastrophes in the successive throwing up of earth's various mountain chains.

267 *b*. III. I turn to the next principle contended for, that the existence of aborted or rudimentary organs is a clear proof of genealogical descent from some creature who possessed that organ in a fully developed condition.

If this principle could be really established it would do something towards supporting the development theory; because it would show that there had been more or less of transmutation. Mr Darwin makes the most of it in the case of that little organ of most animals—the tail; which (having no idea of additions to a creature's structure for the purpose of grace or beauty) he thinks in most cases useless, and therefore traces up its possession, genealogically, to a creature to whom it *was* of use. Thus, he argues (p. 196), "Seeing how important an organ of locomotion the tail is in most aquatic animals, its general presence and use for so many purposes in so many land animals, *which in their lungs or modified swim-bladders betray their aquatic origin*, may perhaps be accounted for. A well-developed tail having been formed in an aquatic animal, it might subsequently come to be worked in [by its posterity] for all sorts of purposes, as a fly-flapper, an organ of prehension, or as an aid in turning as with the dog."

I have another reference to make to this passage, as it shows how solid are the arguments and how sound the inductions of this "masterly volume," which the "Essays and Reviews" declare "*must* soon bring about an entire revolution of opinion in favour of the grand principle of the self-evolving powers of nature." In my last chapter I noticed the branchial apparatus of the human fœtus, by which the blood was organized before its birth, after which the lungs could be inflated by air. This wise and benevolent provision is also "worked in" by Mr Darwin as an aborted organ. He instances the fact that certain fishes, besides their gills or branchiæ, have swim-bladders filled with air, with a *ductus pneumaticus* for its supply, and suggests that this swim-bladder might be modified for

other purposes. In the next page he tells us he "can hardly doubt" that these bladders were worked up into lungs, and that all vertebrate animals possessing lungs were descended from some prototype possessing a swim-bladder; and writes of the foetal branchiæ as aborted organs. Nor does he offer any more evidence to substantiate this strange notion; but, six pages after, as quoted above, and italicized, refers to it as an established fact; and alludes to land animals (man, doubtless, among the number), as in their lungs, or modified swim-bladders, *betraying their aquatic origin*.

The reader may judge by such instances of *induction* what is the true value of this "masterly work." But having given two specimens of the evidence he draws from "rudimentary organs," let us now turn to two which will not even so far serve his purpose. Development is progress upwards. But if a rudimentary organ is proof of genealogical descent from a creature who possessed it fully developed, what are we to make of the rudimentary bone of the human thumb in a horse's fore leg? Must *his* parentage be traced up to man? What are we to make also of the male mammæ or teats, rudimentary organs so remarkably prevalent? Are they to be taken as proof that formerly all males were females? I have more to say presently on the question of morphology. Here I will only repeat that such classes of facts (and they are numerous) supply proofs, in the works of the Creator, of unity of purpose, and of arbitrary will.

267 c. IV. The next principle contended for, and the only other of any importance, which has not been already answered in previous chapters, is that the morphological resemblances of whole classes prove at least that those whole classes are lineally connected with a common prototype. Strange argument! as though there needed anything to bring about resemblances in form, except chosen types, or ideas of beauty, in the mind of the Creator. As well might he tell us that, because several of those wondrous aggregations of suns and systems, the spiral nebulae, so much resemble in shape the conchoid mollusc shell, that either the nebula must, in very distant ages of the past, have been the progenitor of the mollusc, or the mollusc of the nebula, or that both are descended from some common prototype! But this

question of homology and morphology has not yet, I am convinced, been met in the most satisfactory way. Professor Owen's work on limbs, his proof of the homology of the vertebrate skeleton, has been seized upon, like every other discovery, by sceptical dabblers in science, and racked and tortured to make it speak in their favour, when its natural evidence is of an opposite kind. Truly, the discovery that all vertebrate creatures possess, in some form or other (either rudimentary, or adapted to their use), all the bones of the human limbs, shows a relation, which was previously unsuspected, between these widely varying creatures. But that relation is *manifestly* one of *design*, and not of genealogical descent. According to the development theory,—which equally applies to that of “natural selection,”—“animal propensities have [in a great measure] determined animal organization: a prolonged desire, and prolonged efforts, in inferior creatures, after something for which they were not originally adapted, have enabled them to attain new structural peculiarities.” But here, in the homology of the vertebrate skeleton, nature gives evidence *directly to the contrary*. Instead of the aborted or rudimentary organ existing in the progeny, and pointing backward to the distant prototype, it exists in the prototype, and points onward through the vistas of the ages to the uncreated being in whom it will be perfected. Instead of animal propensities determining animal organization—instead of prolonged desire and prolonged efforts in the inferior creatures, enabling them to attain to something higher—instead of the want, or the necessity, producing new structural peculiarities, the structural peculiarities existed, in rudimentary form, millions of years before the want arose! And why should the first fish that swam in the primeval seas, and every fish that has succeeded it—why should every amphibious or other reptile, every bird that skims the air, and every beast, small or great, that treads the solid earth, possess, in fin, and paddle, and wing, and front leg, the bones of the human arm and fingers, unless the Creator arbitrarily *chose* to show a oneness in his works: unless He *chose* to act upon one typical form or model, and adapt the adjuncts of that model to all kinds of purposes: unless He, who in the Bible has given us so much of type and prophecy, chose to give in the first vertebrate creature a ma-

terial prophecy of man, the great antitype of the vertebrate class, foreordained, in the counsels of eternity, to be the denizen of the world he was preparing for him? "*In thy book,*" said the Psalmist, "*were all my members written, which in continuance were fashioned when as yet there was none of them.*" And here we see that those members were written not only in the book of God's decrees, but in the book of nature, in the stony tablets of the earth, buried, sometimes, thousands of yards beneath us!

CHAPTER XI.

MORE DIRECT OBJECTIONS AND DIFFICULTIES REGARDING THE DIVINE WISDOM AND GOODNESS—THE EXISTENCE OF NATURAL AND MORAL EVIL—CONSIDERATION OF THE PRINCIPAL THEORIES OFFERED TO ACCOUNT FOR IT, CLASSED UNDER THE HEADS OF ZOROASTRIAN AND PTOLEMAIC—THEIR FALLACY—THE EPICUREAN CLASS OF OBJECTIONS ANALYZED, AND SHOWN TO BE INAPPLICABLE—PROPOSAL OF A BETTER THEORY.

268. THE difficulties obviated in my last three Chapters took not so much the shape of direct attacks upon the wisdom and goodness of God as upon His being. But the one of necessity involved the other. The general bent and object of the whole was, if possible, to make it apparent that existing things gave no evidences of wisdom, power, and goodness, sufficient to induce a belief in the existence of an intelligent Creator.

The difficulties and objections now to be obviated are of another class. Their attacks upon the Divine wisdom and goodness are not merely implicative, but direct and palpable. Exceedingly diverse in their nature, they all, in one respect, resemble each other; viz. in their tendency towards the Atheistical conclusion—that *the existence of natural and moral Evil is incompatible with the existence of a Being infinite in wisdom, power, and goodness.*

269. In order to show more clearly the fallacy of this general conclusion, it may be necessary not only to examine the facts upon which it is based, but also to ascertain whether any of the various classes of opponents have discovered any more rational mode of accounting for the existence of Evil, than what Theism and Christianity propound. I shall, therefore, first examine their systems, or notions, somewhat more in detail than might otherwise appear desirable: and, for the sake of classification, shall arrange them under separate heads; naming them from early Philosophers who introduced or supported the notions they embody, the *Zoroastrian* and the *Ptolemaic*; and shall afterwards consider a class of difficulties which may, with propriety, be styled *Epicurean*, from whence nearly all the objections of modern Atheists, on this subject, have been derived.

270. The *Zoroastrian* system, as revived by the Manichees and others, consists in the notion of two principles, or beings, the one good, the other malevolent, which are, and have been from eternity, constantly contending. The one of these is supposed to be desirous of communicating all possible happiness, the other of inflicting all possible misery—Evil, in all its forms, being the production, or creation, of the latter. It may be thought a waste of words to show the fallacy of a system which most men will consider has long been consigned to oblivion. But, in the present vagaries of Scepticism, we find so much of ancient theory remodelled, that it is impossible to tell what notions may not be revived in the next age, or what new “phases” Spiritualism, or some other “ism,” may put on.

Already may we discover some indications of a desire to resuscitate at least a portion of this defunct system—when men talk gravely of Satan as a “personification of the principle of evil,” and write his name “D’Evil.” I proceed, then, to show that those notions are fallacious; and that the existence of such a principle of evil, equally infinite with the principle of good, is an absurdity and an impossibility. This I propose to do, firstly, by showing that the existence of two infinite beings is impossible; secondly, that if two such infinite principles were contending, and had been contending from eternity, the result must have been, that nothing would ever have been produced or created; thirdly, that under the supposition of the existence

of such a malevolent principle, evil would not be evil ; fourthly, that evil is not a principle at all, but rather a defect, or imperfection.

271. First, then, there can be no infinite principle of evil, because there can be but one Infinite Being. We have seen, in former portions of this Treatise,* that such a Being must be self-subsistent, immense, eternal, and immutable ; all-comprehending, all-involving, all-powerful, and all-wise. But to say that there are two such beings, is to say that there are two self-subsistents, two all-comprehendings. It is asserting that there are two alls—that all is not all—or that there is something beyond or besides all : the fallacy of which is patent to every comprehension.

272. Again, that which is Infinite must necessarily be perfect ; but infinite evil would be infinite *imperfection*, which is a contradiction in terms.

273. Once more, the notion of an infinite evil being, the opposite of that which is infinitely good, is self-destructive. Such a being, or principle, could not be infinite in extent, in knowledge, or in power, or it would not be the opposite of that whose goodness is a necessary result of *its* infinitude. In fact, to be the direct reverse or opposite of that being, it must be its pure negation—an infinite defect, or, in simple language, *nothing*.

274. Secondly, if two such beings, or principles, as those supposed by Zoroaster and the Manicheans, had been contending from eternity, considering the evil one as an absolutely malevolent being, whose power and natural perfections were equal with those of the good one, all their efforts would have been to no purpose whatever. “Admit,” says Tillotson, “that a being infinitely mischievous, were infinitely cunning and infinitely powerful, yet it could do no evil, because the opposite principle of infinite goodness being also infinitely wise and powerful, they would tie up each other’s hands : so that, upon this supposition, the notion of a Deity would signify just nothing ; and by virtue of the eternal equality and opposition of those principles, they would keep one another at a perpetual bay, and,

* Chapters I., VIII., and IX.

being an equal match for one another, instead of being two Deities, they would be two idols, able to do neither good nor evil."

275. Thirdly, under the supposition of such an infinite malevolent being, or principle, evil would not be evil. The supposition destroys human liberty; and forces man to sin, by an inevitable necessity. Under such a supposition, then, sin is not sin. If it be impossible for God to conquer this principle of evil, and make it subject to His sway, far less is it possible for the creature to resist it. That to which man is irresistibly driven, not by *his own fault*, but by an infinite and eternal fault, he incurs no guilt *in* doing, and deserves no punishment *for* doing. Under such a supposition, then, there is no such thing as sin, defect, or evil in the world; for sin is not sin, defect is not defect, and evil is not evil: and if there be no evil, there is, of necessary consequence, no principle of evil.

276. But, fourthly, I contend, that though, dwelling and working in the finite creature, evil has become no mere negation, but an active opposition to that which is good; yet, viewed in the abstract, it is not a principle at all, but simply a departure from good, originating in defect or short-coming. The man who declaims about the *principle* of evil as opposed to the *principle* of good, may as well talk of the principle of darkness as opposed to that of light; of the principle of defect as opposed to that of perfection; or the principle of nothing, or non-existence, as opposed to that of existence. Natural evil, or limitation of physical good, is, in some measure, an inevitable concomitant of finite or creature existence. Moral evil, or departure from that which is morally perfect, is a condition to which the *free* creature is necessarily *liable* by the very constitution of his nature. God alone is perfect, or infinitely good. That which comes short of God, as every creature must do, so far comes short of perfection. And if, when thus finite, it is endowed, as God's image, with that great attribute of the Infinite—a freedom of the will, or the power of choice or election—it must necessarily be *liable* to depart from Him who is perfect goodness, or THE BEST: and if, by a divergence of the *will*, it thus departs, will naturally become

less and less 'good, less and less wise, less and less powerful, until it degenerate into evil, folly, and imbecility.

277. Seeing, then, that the existence of two infinities is impossible; that if two such principles as infinite good and evil had been contending from eternity, the visible creation could have had no being; that, under such a supposition, sin would not be sin, evil would not be evil; and that evil is not a *principle* at all,—it is manifest that the existence of natural and moral evil is not the result of an infinite principle of evil, perpetually contending with the principle of good.

278. I turn from the Zoroastrian to the Ptolemaic class of notions; and these I name after that ancient writer who meted out the heavens in four quadrangles, and left us, as the result of his study of Chaldaic lore, about the most ancient system of Astrology that we have upon record. According to the propounders of this class of notions, all the good and evil which takes place in the Universe, results from the motions and aspects of the starry orbs; and especially from the mutual aspects and configurations of those planetary worlds which are connected together in each solar system. This system, then, if system it may be called, is but a development, or carrying into detail, of that which I have termed Zoroastrian,—the malevolent or evil principle being supposed to rest in one portion of the planets, the benignant or good principle in the other.

279. The same objection may apply to the consideration of this set of notions as the former—that contending with them is contending with the dead. But they who urge such objections have little or no idea of the real state of society in some portions of its middle and lower ranks. For, independently of the immense annual sale of Almanacs, which profess, by the “*Vox Stellarum*,” to tell of events which are coming, I have known those who have turned from a profession of Christianity to Atheism, and at least one who died an Atheist, through giving himself up to the study of such “Chaldaic folly.” To show the theoretic absurdity of the system would be utterly unavailing where it most is needed. To him who believes it, nothing is absurd. I choose rather, therefore, to show, as a two years’ study of the system in my boyhood will enable me

to do, that there are contradictions and impossibilities in its most essential details—details with which every student of the so-called science must necessarily be familiar.

280. The whole calculations of Astrology are based upon the idea that the earth is fixed and stationary ; that the heavens, with their fixed stars, wheel around it in twenty-four hours ; and that the sun and moon, and the earlier discovered planets, are wanderers amid those heavens. Their *apparent motions*, direct and retrograde (which are principally an optical illusion, resulting from the motion, and, consequently, the different positions of the earth in respect to them), are supposed to be real ones. Horoscopes are drawn out, under the same illusive idea, real or implied ; and the influence of the sun, moon, and planets, is supposed to proceed from their having assumed, *by their motions*, at the moment the horoscope is drawn, that position with regard to the earth which, optically, they appear to have assumed. The calculations, at once of right ascension, and oblique ascension, are based upon the same fallacy ; and in accordance with those calculations, and with the position of the planets with respect to the earth, at the time of birth, or the time of commencing any undertaking, good or evil is supposed to result.

This influence, it must be noted, however, is considered not only to extend to men and kingdoms, but to predominate over all material things, from worlds to animalcula ; and I now proceed to show, by a few examples, that the so-called science is self-contradictory, and, consequently, false.

281. First, then, according to the leading principles of Astrology, a death by stabbing can only result from an evil aspect of Mars ; an occurrence which, in the ordinary course of events (according to a fair calculation of probabilities), would not happen more than once in some three hundred times. Yet, to make Astrology correct, instead of once in three hundred times, that aspect must occur in nearly every horoscope of oxen, sheep, and swine, in lands where those animals are domesticated ; while their brethren in other regions, which man has not “subdued,” and where *martial* instruments are unknown, are free from the malevolent interference, by quartile and opposition aspects, of this “god of

war." To assert this, is to assert an improbability so great, that the man who would act upon so remote a chance, in any of the ordinary affairs of life, would be placed in confinement as unfit to have the control of his own actions.

282. Secondly. Two creatures born at one place, and within a few minutes of each other, could seldom, if ever, according to astrological rule, differ so materially in their fate, as one to have a life protracted to maturity or old age, the other to meet with a sudden and speedy death. Were Saturn on the cusp of the ascendant,—an aspect indicative of certain and immediate death (which was the case in *my* horoscope),—a few minutes would, indeed, according to Ptolemaic doctrine, make a vast difference in the state of affairs. The individual born under the aspect could not survive; while the one born a few minutes after, would have a narrow escape from such a speedy termination of its existence. Or did the ascendant, or its ruling planet, meet with quartile or opposition aspect from the moon, a death by drowning would be the declared result, from which, by the delay of a few minutes in the birth, the unfortunate creature might have been freed. But these two are aspects, which, like the other already descanted on, might naturally happen once in some three hundred times; and yet, if Astrology be true, they must *always* happen, and usually continue for a lengthened period, utterly incompatible with the rapidity of the earth's motion, whenever our household animals—our dogs and cats—give birth to their too rapidly increasing progeny.

283. Thirdly. According to these astrological notions, two children born near to one moment, and in nearly the same latitude, should, in their features, and in all their course of life, bear so strong a resemblance to each other, as scarcely to be distinguishable. Now, it will not be denied that there were many children brought into existence in nearly the same latitude, and at nearly the same moment, with Napoleon Buonaparte. And where were they? and where are they? and in what history do their deeds stand recorded? It may be answered, for it has been answered, in reply to such a query, that *if they could be found*, their course would doubtless bear a marked resemblance; and they must have risen proportionately in their state and

condition ; while parentage, and circumstances of birth, would account for all other differences between them. This answer, nevertheless, carries its own refutation. The counterparts of Napoleon would not have to be sought for. They *would be found* by their effects, like a volcano in eruption, or an earthquake, whose course may be traced by the desolation it produces. Nor is the remark respecting circumstances of parentage and birth at all more applicable. The parents, brothers, sisters, occupation, would all have the same significators ; and, therefore, must in every point resemble, if not be essentially *the same*.

After these three proofs, then, that they *cannot* be correct, selected from many others which might be produced to the same effect, I think we may safely dismiss, as fallacies, the Ptolemaic notions—that natural and moral Evil are the result of the motions, aspects, and configurations of the heavenly bodies.

284. From the Ptolemaic, I turn to the Epicurean class of objections and difficulties, which lie at the foundation of most of the Atheism, and much of the Scepticism, of the present age. Perhaps I cannot better sum them up, than in the words of the ancient writer, whose name I have used in giving a title to the class : * “ *Either God is willing to remove evils and not able, or able and not willing, or neither able nor willing. If he be willing and not able, he is impotent, which cannot be applied to the Deity ; if he be able and not willing, he is envious, which is equally inconsistent with the nature of God : if he be neither willing nor able, he is both envious and impotent, and consequently no God. If he be both willing and able, which is the only thing that answers to the notion of a God, from whence come evils ? or why does he not remove them ?* ”

285. At first sight, these objections appear to carry with them overwhelming force ; and certainly the existence of Evil is the greatest difficulty connected with Natural Theology ; the one great fact which, more than all others, renders revelation necessary to give rest to the mind. It is one of those mysteries, the solution of which being undiscoverable, we might, almost instinctively, expect to be revealed. Yet, even

* Epicurus, as quoted by Lactantius, in his book, “ *De Ira Dei.* ”

apart from revelation, with so many apparent exhibitions of benevolent design in the works of creation, we have no sufficient reason to conclude, because evils exist, that God is either unable or unwilling to remove them. It is impossible for our finite capacities to grasp the Infinite; and how can *we* tell but that it was needful for the Deity first to prove to the creature His being and His nature, and its own innate nothingness, before an immutable standing place could be provided, on which, by the indwelling of Deity, the creature itself might rest in security, and at the same time allow the Divine goodness to flow free and unrestrained? How can *we* tell but that we are yet in the mere vestibule of creation, as regards rational and responsible creatures, the entrance to the grand theatre of unmingled good,—a vestibule wherein the creature is being tried in all forms and ways, to show that its only immutable standing place is God? Or how can *we* tell but that, assimilating all things to himself, He is now urging through matter His redeeming, renovating course, conquering and to conquer,

“From seeming evil still educing good,
And better thence again, and better still,
In infinite progression,”

until all things shall be made perfect in Him, and the immutability of Deity be in some sense communicated to the imperfect and the mutable? The years that are past, what are they? Count them by the course of light, by the ages during which its rays have been travelling from the most distant nebulae—treble, quadruple, or multiply them a thousand times, yet they are nothing compared with immortality; but may still be regarded as the mere vestibule of being. And before the Atheist has a right to draw such conclusions, or to ask the question why evil is not removed, he should be in a position to prove that God is not even now *doing* what He suggests that He is either unable to do, or unwilling to do, or both—that he is not even now *removing evil*.

286. But, granting, for the sake of argument, that these Epicurean positions are correct ones, the consequences do not necessarily follow. God may be *unable* to remove evils, and yet not impotent. Not to be able to do that which in the

nature of things is impossible, bespeaks no impotence in Deity. "God," to use a familiar proverb, "cannot make two hills without a valley." The darkness which involves the question of evil is doubled, if not wholly created, by the fallacy of regarding it as a principle, instead of considering it to be, what it really is, a departure from good, originating in mere *defect* or *short-coming*—a not reaching the standard of that which alone is perfect.* It is quite possible for that which is *created* to be "good," yea, "very good;" but it is utterly *impossible* for it to be absolutely perfect, or *the best*; for in so far as it falls short of Deity, in so far it falls short of perfection; and God himself could not create a God, inasmuch as there cannot be two infinites. Clearly, then, as evil originated in a divergence from good, which resulted from a short-coming of absolute perfection,—and an absolutely perfect *creature* is an impossibility,—the conclusion is not a correct one, that, "if God cannot remove evil He is impotent;" and the premises based on that conclusion fall headlong to the ground.

287. God has placed the Universe under the operation of certain laws, which evidence at once His wisdom and benevolence. He has also endowed a certain portion of His creatures with freedom of the will, or the power of choice. From the conflicting operation of these, as secondary causes, evils sometimes result. But God is not chargeable with these evils, as the author or creator of evil, merely because He does not reverse the laws of nature in order to prevent them.

288. To suppose a case of frequent occurrence, similar to one which is cited, for a very different purpose, in the "Vestiges of Creation,"—a boy climbing a tree, misses his hold, and falls to the ground. He breaks his arm by the fall, and is carried home to endure much agonizing pain. Now, the pain which he endures may well be called an evil: but it is the result of five † things, one of which was the necessary accompaniment of his existence; the other four, in themselves, not merely indifferent, but *good*. Possessed of freedom of the will, one of God's best and noblest gifts to the creature, he chose to climb the tree.

* See Tupper's "Probabilities an Aid to Faith."

† The author of the "Vestiges" finds only two things concerned in such a case. I find five.

Bounded in knowledge and in power, as every creature must be, he either did not do what he intended, or he did what he did not intend, and fell. The impulse which moved him to make such an election or choice, was, doubtless, that love of muscular exertion which is inherent in healthy childhood. This is essentially good, being necessary to the development of the creature in the full vigour of manhood. The cause of his falling, when he missed his hold, was the law of gravitation, by which bodies are attracted to each other,—a law by which the whole Universe is upheld, and without which it would soon become a chaos. As the author of the “Vestiges” remarks, “It was not a primary object of gravitation to injure boys; but gravitation could not but operate in the circumstances; its nature being to be universal and invariable.” The pain itself is the result of nervous sensation, a provision equally wise and benevolent, since it is the source of all our pleasurable feelings, as well as the sentinel which warns us of all dangers. There are four ways, then, by which this evil might have been prevented. God might have made man without nervous sensation, and insensible to pain; but this would have been anything rather than benevolent, since he would have been equally insensible to pleasure, and subject to many and greater evils, for lack of that sensibility. He might have interfered with the law of gravitation, to prevent the boy from falling; but that would have been interfering with the stability of the Universe. He might have created him without a love of muscular exertion; but that would have been to create him without a capacity for one of his chief enjoyments, and to prevent him from developing his strength. He might have prevented his choosing to climb the tree; but that would have interfered with his highest gift—the freedom of the will. On the other hand, He might *not* have given him, what he lacked, and lacking which, he climbed, and fell—*infinite power and knowledge*; for that would have been to make him not a creature, but a God. Who shall say that in this case, by interfering to remove or prevent the evil, God would have acted like a God?

289. This is a fair sample of all natural evil. It is not, as before remarked, a *principle*; but a limitation, defect, or shortcoming—a sure inherence of creatureship, unless the creature

be immutably sustained, by God dwelling with him, and in him, for ever. It cannot, therefore, with truth, be asserted, that God is not a Being all-powerful, wise, and good, because He lacks either the will or the power to remove evil from the world : since it cannot be shown that it is possible for a creature to be perfect : nor can it be shown that it is not *in every case*, either God's *wisdom*, or His *goodness*, or *both*, which limit the operation of His power.

290. Moral evil is somewhat different from natural evil, though often accompanied by it in its effects and operations. It will, however, be found, on examination, to proceed from the same two sources, namely, the imperfection of creatureship, and the freedom of the will. The creature in its highest form is only imperfect. It would, otherwise, be in possession of an attribute of God. The highest form of creatureship, too, is moral agency ; and moral or responsible agency could not be, without freedom of the will. It might be created good, and inclined to good, but it must necessarily be *liable* to depart from it, through holding the power of choice, which is itself its most inestimable possession.

291. Of the imperfection which is the necessary result of creatureship, I have already said so much, as to render it unnecessary again to dwell upon it. There was no choice between the creation of an imperfect being, and no creation at all ; for that which is limited must necessarily be imperfect in knowledge and in power. If, then, it were consistent with the being and nature of a God to create a free agent, a being endowed with the power of choice or election, (and who shall say it was not ?) this creation rendered the *permission* of moral evil unavoidable. It was *as* unavoidable as the limited nature of the creature's endowments, since in that power of choice or election, the responsibility and free agency of the finite moral being may be said mainly to consist.

292. The question then arises, *are* men free agents ? or have they no more power to resist the impulses that urge them, than a cannon-ball has to turn aside from the course in which it is projected, in order to avoid being the instrument of destruction ?

That we are, in a measure, the creatures of circumstances, is most true ; but we are not so in that measure for which the old

school of Atheists and modern Socialists have contended. They tell us, that our choice is so swayed, by the circumstances in which we are placed, as to leave us no real freedom. The motives and influences surrounding and operating upon us, are thus represented as forming the current of a dire necessity, by which we are irresistibly impelled either to act, or to refrain from action.

293. But if there be no such thing as liberty in the world,—if every choice or election is but the result of impulsive necessity, in consequence of the motives and influences around us making that appear the best which we choose,—how is that virtue (which, connected or unconnected with religion, all acknowledge to be *the best*) is so seldom chosen? The simple truth is, as shown at large by Archbishop King, that we often do not choose things because we find pleasure in them; but find pleasure in them because we choose them. At once in the moral and natural world, more, perhaps, than half the pleasures of mankind are the result of *choice*, derived from objects which, but for that choice, could yield no pleasure. The undepraved, or uninitiated taste, has a natural dislike to tobacco, opium, and alcohol; and yet a great portion of mankind, because they *choose* to do so, seek, in the use or abuse of these, some of their chief enjoyments. The love of fame, or the love of wealth, will incite man to endure fatigue and toil, privation and distress, without repining; and what *good* is there in either of them when attained, except that which results from their being the *chosen* objects of desire? Wealth, indeed, will purchase a thousand gratifications and blessings; but he who lusts after it does not want it for these. His choice is *wealth*, which, considered apart from what it will purchase, is of all things most useless; and yet, in the acquisition of it, even amidst needless toil, and suffering, and self-privation, he finds his happiness—because he has *chosen* it. Or take a more extreme case. View the fanatic, or the superstitious devotee, of which India finds us so many examples: Is there pleasure in pain,—in self-inflicted tortures? The Fakir thinks so, because he has *chosen* them as a means of recommending himself to his fancied deity! and in these he pursues his good.

294. A calm and dispassionate investigation will lead any

one to the conclusion that, whatever it may be towards good, (with which our present inquiry has nothing to do,) at least to evil the will is free. And leaving out of the question the doctrine of the fall of man, (to which revelation bears witness, and which every aspiration after power, and every effort towards improvement, by education, punishment, and law, corroborates,) a further investigation will demonstrate that, from this power of election, and the imperfection of creatureship, either primarily or relatively, all moral evil arises. "*Who art thou, then, that repliest against God?*" or how shall it be said that the existence of evil is incompatible with the existence of a Being all-powerful, wise, and good?

295. But it is only the jaundiced eye that sees so much of evil, or ANY *unmixed evil*, in the Universe. When Mirabaud conceived that he had found enough of impropriety and imperfection to banish God from the realms of *nature*, looking at all things as the work of his cherished idol, he saw them with different eyes; and immediately discovered that evil was usually mixed with good; and that vice and virtue, by the working of some inscrutable law, generally obtained their due reward. Even Atkinson seems to regard the miseries of the human race as in a great measure their own fault, when he says, in language not at all inconsistent with the declarations of Holy Writ—"Of one thing I am sure—that we are yet but on the very threshold of knowledge; and that our social condition is depravity through and through, and from end to end." Again he tells us—"Law rules *impartially*,* though individuals suffer cruel extremities from necessity; all evil, however, having some tendency towards universal good, as manure and decaying matter are the substances essential to regeneration and the golden harvests."

296. The author of the "Vestiges of Creation" goes much further than either of these. While denying the doctrine of a superintending Providence, he yet, by a series of lucid arguments and examples, justifies the ways of God to man, and says, in the language of irrefragable truth,—“That enjoyment is the proper attendant of universal existence, is pressed upon us by all that we see, and all that we experience. Everywhere

* "Man's Nature and Development," p. 176.

we perceive in the lower creatures, in their ordinary condition, symptoms of enjoyment. Their whole being is a system of needs, the supplying of which is gratification; and of faculties, the existence of which is pleasurable."* And if the larger share of misery endured by the highest orders of creatures which inhabit the earth, has left some enigmas, such as revelation only can solve, we need no further proof that good on the whole preponderates, than the tenacity with which they cling to their chequered existence.

297. Beneath many of those things which are usually regarded as natural evils, we may see, on examination, an ever-running stream of good. If we interrogate nature, she will tell us that one of those evils which we most deprecate and seek to avoid, namely, PAIN, is necessary to our preservation, in the present state of things. By pleasure and pain, for the most part, we regulate our actions. A man that felt no pain, as is justly instanced by Alfred Smee,† would not be able to tell whether he sat upon a chair or a red-hot iron plate; and would thus run the chance of being destroyed. If he felt no pain, man might walk upon nails, or other sharp instruments, and thus inflict serious injuries upon himself, almost unconsciously. Little children, when they fracture a bone, could never be kept sufficiently still for the separated parts to be kept in apposition, but for the pain which is caused by the movement of the injured limb. In the present state of things, indeed, it would almost seem impossible for Infinite power and wisdom so to construct an animal, as to cause that he neither be liable to pain, nor suffer inconvenience from the absence of that liability. To ask it, is to ask that he may walk, unhurt, through fire, or on the bottom of the ocean; that he may be crushed by weights, or torn by machinery, and yet remain uninjured. The experience of the medical profession will always testify that *useless* pain is seldom inflicted: for that which destroys, usually causes absence of pain. Thus, a limb which is so severely injured as to be *destroyed*, even by crushing or burning, ceases to be painful. The man who is frozen to death, feels as though he were going quietly to sleep. And those

* "Vestiges of Creation," p. 255, edit. 1847.

† "Instinct and Reason, as deduced from Electro-Biology."

who have been rescued from drowning, uniformly state that their sensations were not very distressing. Pain, again, especially the pain of hunger, is our chief incentive to action; and in activity consists our chief animal enjoyment. Yea, did we not suffer from some necessity or other, it is probable that we might sink into inertion; since the impulse to exertion must necessarily consist "in the necessity of supplying some *want*, of gratifying some desire, or of removing or allaying some *pain* or uneasiness." *

298. Turn from minor to major evils, and we see the same accompaniment of good. The thunder-storm that wields the bolt of death, refreshes the parched earth, and purifies the air. The force of gravitation, which causes concussions, and renders a fall often fatal, serves to keep all moveable things stable on the surface of the earth; otherwise, every living creature might be thrown off by its rotations. The winds that, sometimes, concentrating their forces, produce storms and hurricanes, or lash the sea into foam, and carry down our floating castles to destruction, bear on their bosom the moistening vapours which render earth fertile, and air soft and balmy. They disperse, too, the pestilential exhalations that arise from fœtid and decaying matter; thus shedding from their wings the dews of life, and carrying away the vapours of death, to be purified and rendered harmless, by fresh chemical combinations. Yea, even those convulsive movements which arise from unseen workings in nature's dark laboratory,—earthquakes and upheavings,—that sometimes spread destruction in their course, are merciful provisions against the wear and tear of ages, which, by their disintegrating process, would level the earth into a plain, and cover it with ocean.

299. The deeper we penetrate into the secrets of nature,—the more we know of the constitution of earth, and air, and sea,—the greater are the exhibitions we behold of the wisdom and beneficence of its Author; and the more we discover, in what we once deemed evils, the producers of universal good. Cloud after cloud is rolling away from the mental horizon. Science, *not* falsely so called, no longer the bond-slave of the Sceptic, but clad in the garments of faith, and endowed with a

* Brown's "Burnett Prize Essay," vol. ii. p. 86.

meek, a quiet, and a teachable spirit, is pushing onward her investigations into the mysteries of all things. Contented to confess her ignorance until true knowledge is obtained, she has already shown us, that, in numerous instances, what our forefathers,

“ Who only saw a little part,
Deemed evil,”

is but an ordination of wisdom and benevolence. And who, in the present imperfection of our knowledge, shall dare to say that those things, and those events, we yet deem evil, may not be the results of unerring goodness? or that our frail eyes would not behold them such, if with eagle pinion we could soar aloft, and bask securely in the light of unmingled day—the light of THE INEFFABLE?

CHAPTER XII.

SUMMARY.—ATHEISM, CHRISTIAN BUDDHISM, PANTHEISM, AND TRUE THEISM—THE LATTER ONLY CONSISTENT WITH THE TEACHINGS OF NATURE, AND THE INSTINCTS OF THE HUMAN SOUL.

300. “BEAUTIFUL upon the mountains are the feet of Him that bringeth good tidings:” but what are the tidings which the ATHEIST brings to the children of disquietude and sorrow?—

301. “Rest thee, troubled creature! thy cares and anxieties are needless; and equally useless as they are unnecessary. Thou art locked in the iron arms of fate, from whose embraces there is no escape. Thou canst not help thyself; and there is none other that can aid thee. Everything above, beyond, around, is dull, dead, unconscious matter, swayed by laws which there is no intelligence to direct, no power, independent of itself, to obviate or control.

"Why should'st thou fume and fret in thy little hour of life? Nature's laws are undeviating; and are not to be put aside for thee. 'Deeper and deeper down in the abysses of time, farther and farther away in the vistas of the ages, all was still what we see it now, a system of ever-working forces;'* and canst thou hope, with thy anxieties, by thy prayers, or by thy tears, to escape from those forces, or to turn aside, or moderate, the laws by which they act?"

"Shall the shattered vessel essay to rule the stormy ocean, which dashes it about upon its bosom, then ingulfs it with a roar? 'Nature acts with fearful uniformity; stern as fate, absolute as tyranny, merciless as death: too vast to praise, too inexplicable to worship, too inexorable to propitiate. Its silence is profound: and when we ask its secrets, it points to death.'†

"What art thou, proud atom! that thou should'st seek to control the forces which produced thee, to sway them by the energy of thy *will*? Where was thy *will* when life entered into thy frame? Where will it be when life leaveth thee? Thou hast no control over the two greatest events of thy being? and why hope to exert it over the lesser ones? Thou hast hopes; but they are mere delusions. *Thine* eye shall not be satisfied with seeing, thy ear with hearing, or thy heart with loving. Thou hast feelings and perceptions which can be gratified with the things that are around thee; but those things were not made for thy gratification. Thou hast faculties to expatiate over the beautiful and grand; but the grand and the beautiful objects of nature were not meant to awaken thy admiration or thy wonder. All these are, like thyself, the production of the workings of unconscious forces. Thou hast longings after immortality; but immortality is not for thee. Why should it be? There is nothing immortal, nothing eternal, in the Universe, but dull, dead, unconscious matter.

"Rest thee, troubled creature! thou art but 'a quantity of carbon and nitrogen, dissolved in a few gallons of water;' and shall nature turn aside from her course at thy implorings? or thy exigencies cause deviations in the laws of that matter of which thou art composed?"

* Miss Martineau.

† Holyoake.

“Fret not thy soul with useless or unnecessary cares! Soul? Thou hast no soul. Thy organization awakens certain feelings and perceptions. Impressions upon the retina are conveyed by the nerves into thy brain. These ‘acquired forms’ thou dost register in thy memory, which ‘is but acquired forms;’* and thou dreahest of possessing a principle independent of thyself, independent of the matter of which thou art a portion! Life is but the action of nature’s forces connected with organization—a temporary spasm. It has no object, no intent, no purpose; for there is no object, purpose, or intent in *any* thing: all is but dull, dead, unconscious matter.

“Rest thee, troubled creature! thou may’st just as well rest; for thou art impotent, and there is no Omnipotent to aid thee. In the vanity of thy foolish heart, thou seekest something to adore; but there is no Being to receive thine adorations, or to draw forth its yearnings. In the feverish fitfulness of thine insanity, thou liftest up thy voice in prayer; but there is no ear to listen, and no hand to aid thee. In the fond dreams of thy perplexity, thou seekest to repose upon the wisdom of a Power above; but there is no wisdom higher than thine own—no Power above, except the powers of nature. There is no principle of life or intelligence in the Universe—no soul—no God!

“Rest thee in the dust, then, fretful creature! For what art thou disquieted? Trouble not about the past or the future. The present only is thine. Thou hast no hold upon the past—no inheritance in the future. Worm as thou art! aspire not to a higher destiny. ‘Let us eat, and drink, for to-morrow we die!’”

302. Cold, indeed, are the consolations of Atheism; yet little better are those which can be obtained from the CHRISTIAN BUDDHISM,† or PAUL-THEISM, of Oxford’s Savilian Professor; who, transforming the I AM into I WAS, would banish the CREATOR from the Universe, or admit Him only as the Producer of its nebulous germs, and the Ordainer of its laws. What are the comforts which this system affords to the

* Atkinson.

† An attempt to connect Christianity, instead of Pantheism, with the Buddhist’s belief in an absorbed or quiescent Deity.

perplexed and troubled spirit? Let us seek to catch the import of its utterances :—

303. "Orderly are the processes of nature. There is no deviation from regularity in its laws. God is a God of order. He fixed the latent principles of things : and by the operation of those principles, in the process of orderly development, all things are become what we now behold them. There are not, there never have been, any interferences of God with nature. Its laws are so all-comprehending as to need no interference—so perfect as to need no repair. We may, at present, be far from penetrating 'the secret of vitality, or the precise mode of its connection with the bodily structure, and the chemical changes elaborated by the various organs. But the truly inductive inquirer can never doubt that there really exists as complete and continuous a relation *of some kind* between the manifestations of life and the simplest mechanical or chemical laws evinced in the various actions of the body in which it resides, as there is between the action of any machine and the laws of motion and equilibrium ; and that this connection and dependence is but one component of the vast chain of physical causation, whose essential strength lies in its universal continuity, which extends, without interruption, through the entire world of order, and in which a real disruption of one link would be the destruction of the whole.'*

"There is not, there never has been, any 'creation,' in the original and popular sense of the term. 'The word *creation* seems now, by common consent, to be adopted as a mere *term of convenience*, to signify, simply, the fact of origination of a particular form of animal or vegetable life, without implying anything as to the *precise mode* of such origination—as simply involving the assertion that a period can be assigned at which that species appears, and before which we have no evidence of its appearance.'† Every apparent 'creation,' though we may not be able, in the present state of our knowledge, to account for it, 'must after all be ascribed to some action of regular

* Essays on the "Inductive Philosophy," &c. &c., by the Rev. Baden Powell, M. A., &c. &c., p. 67.

† Ibid. p. 399.—Mr Powell continues, "In this sense there can be no objection to its use, but it should be carefully guarded against possible misapplication."

physical causes as yet unknown.’* Man may dream of being an exception to the rule; but his ‘nature and appearance on earth is in nothing of a peculiar kind, *and in no way violates the essential unity and continuity of natural causes.* If we admit that the earth, being still hot internally, must have cooled down at its surface, and that this cooling must, in its progress, have caused contortions, dislocations, upheavals of strata; and, again, that the waters charged with matter must have deposited it; and that the various crystallized bodies and metallic veins must have been formed during certain stages of these formations,—it is only by parity of reason affirmed that the rudiments of all *organic*, as well as inorganic, products and structures must have been evolved *in like manner*, as they were alike included and contained in the once fused, and therefore once vapourized, or nebulous mass. In that mass, all kinds of physical agents, or the elements of them, thermotic, electric, chemical, molecular, gravitational, luminiferous, and, by consequence, not less all *organic* and *vital* forces, must have been included. Out of it in some way, by equally regular laws in the one case as in the other, must have been evolved all forms of inorganic, and equally of *organic*, existence.’† ‘That new species should be subject to exactly the same general laws of structure, growth, nutrition, and all other functions of organic life; and yet, in the single instance of their *mode of birth*, or *origin*, should constitute exceptions to all physical laws, is an incongruity so preposterous, that no inductive mind can for a moment entertain it. It *must* have been as truly subject to pre-arranged laws as any case of *ordinary* re-production.’‡

“Let man, then, awake from his dreams; and calm his fond disquietude. He cannot bend the inexorable, or alter the unalterable. Useless are his anxieties: unavailing are his agonizing prayers. He cannot move to pity, with his pleadings, the Ordainer of the very laws under which he fancies himself to be suffering. Nature will not turn aside in her

* Essays on the “Inductive Philosophy,” &c. &c., by the Rev. Baden Powell, M. A., &c. &c., p. 431.

† Ibid. pp. 77, 78.

‡ Ibid. p. 360.

courses for him. 'The disruption of one link in her chain of order would be the destruction of the whole.'

"Why, then, cry unto God? There is no God in nature; though its ORDER is an exhibition of His legislative power—of the perfection of His 'pre-arranged laws.' If thou dreamest of a Deity who stoops to interfere with the Universe—who comes forth from His sublime retirement, and listens to the cries of His creatures—who delights in their happiness, or interests Himself in their affairs,—the Buddhist, whose idol created, then sunk into quiescence, had a better and more accurate notion of Deity than thou hast.

"Worm of the earth! Offspring of a monad! What ORDER would there be in the Universe, if thy sorrows or thy tears were capable of moving the Eternal One, who sits complacent and retired above the world of nature, and leaves material things to the working of the perfect laws under which He placed them? Weep not! complain not under suffering! Why should'st thou not suffer? Thy pain may be necessary to another's pleasure! Console thyself with the reflection that 'the Deity operates by fixed laws: an arrangement which only admits of the main and primary results being good, but DISREGARDS exceptions.* Endure with patience: but think not to obtain the aid of Deity in thine afflictions. *God never interferes.*

"Talk'st thou of Moses, and of Genesis? I have settled that question for thee! 'All inquirers possessing at once a sound knowledge of Geology, and capable of perceiving the undeniable sense of a plain, circumstantial narrative, now acknowledge that the whole tenor of Geology is in entire contradiction to the cosmogony delivered from Sinai: a contradiction which no philological refinements can remove or diminish.'† 'In the minds of *all competently informed persons* at the present day, after a long struggle for existence, the literal belief in the Judaical cosmogony, it may now be said, has died a natural death.'‡

* "Vestiges of Creation," 6th edition, p. 256.

† Powell's "Essays," p. 304.

‡ Ibid. p. 457.—Sufficient proof of the falsehood of the bold position assumed in the last and present quotation, will be found in succeeding portions of this volume.

"Dream'st thou of miracles, as well as of catastrophes and creations? Poor visionary! The 'Inductive Philosophy' admits of no deviations from order and regularity. There never have been any 'sudden interruptions of order, or operations of an unknown and mysterious kind, alien from all *natural* causes.* What though such 'sudden interruptions' be the evidential foundations upon which thy faith is built—the substantial proofs of HIS mission whom thou regardest as God Incarnate: what though they be inseparably entwined with the source of thy comfort, the centre of thy hopes, thy expectations of a better life hereafter: what though they have spread their ramifications upon thy soul like the nerves upon thy body,—thou must give them up: they are myths! delusions! fables! *The Inductive Philosopher cannot hear of them.*†

"Listen! and look forward with hope. When the Inductive Philosophy shall have exercised its due influence in the world, then a purer Christianity shall prevail, divested of narrow and peculiar views, of catastrophes, creations, and miracles:‡ and

* Powell's "Essays," p. 426.—Close indeed is the resemblance between the Christian Buddhism of Powell and the Atheism of Atkinson, who tells us, that "there never has been, or can be, any miracle or interruption of the laws of nature."

† The whole scope of Professor Powell's reasoning, in his volume of "Essays," (however in some places disguised,) is, to prove that there have not been, and cannot be, any "sudden interruptions" of order and natural law, either by *creation* or *miracles*. The reference made (p. 473) to the belief of some "eminent and orthodox Divines," that miracles, "instead of interruptions, are really to be regarded as instances of the observance of some more comprehensive law unknown to us," or of "laws intermitting," is but subterfuge or by-play. I cannot understand how any one should hesitate at miracles, in the *natural* sense of the term, and yet should conceive of the prophets of God, or of God-Incarnate, authenticating their mission by taking advantage of the period when these "laws intermitting" should come into operation. But, whether *under law* or *against law*, such incidents as those related in the Scriptures, *if they occurred at all*, are clearly interruptions of that principle of unity which is contended for in the "Inductive Philosophy." They cannot, consistently, be admitted *at all* by the PAUSI-THEIST, or CHRISTIAN BUDDHIST, who seems to regard *his* QUIESCENT DEITY as a GREAT ABSENTEE, bound over in recognizances never to interfere with the "order and regularity" of the Physical Universe.

‡ What will be left of Christianity when it is divested of all its *peculiar*

the powerless creature, rebelling no longer against the undeviating operation of physical laws, shall become wiser, more contented, and happier, under the enlightened influence of reason."

304. ————Oh! well might man, feeling his dependence and his impotence, oppressed by the night-mare conception of such a cold and immoveable being, fly for refuge to the thought of a Creator and Provider. Well might he exclaim—"Oh that this God were a *Living* and a *Present* One! then might we have some consolation in our trials, from the thought of One who is able to aid us. Poor orphans! the sport of circumstances over which we have no control, left by Him who ordained our existence to the inexorable working of unconscious laws! The sea may engulf us; the earthquake destroy our cities; the volcano may pour forth its molten torrents upon us; the boiling surges beneath may throw up new mountain chains, and involve whole races in destruction,—but God heeds not our sufferings or our sorrows. Better were we the sport of some *malignant* being, who could laugh at our consternation and take pleasure in our pain; for even *he* might in time be propitiated by our prayers; while nothing can move the Imperturbable to sympathy or pity. But there is no help for us now—no eye to watch over us—no ear to listen to us—no hand to save us. *Oh! for a Living and a Present God!*"

305. But hark! another voice—the voice of PANTHEISM.* The mind, unable to realize her state of separation from the All-Perfect Essence which gave her being, contemplates the Universe as its outward and visible form. Aghast at the thought of meeting law everywhere, and God nowhere, it contemplates nature as the body of which God is the animating Soul. What

doctrines, no one, perhaps, except "Inductive Philosophers," will be able to define. I can readily conceive of the humble and unsophisticated believer, perplexed by *their peculiar views*, exclaiming with bitter disappointment, like Mary in the garden—"They have taken away my Lord, and I know not where they have laid him."

* If it had not already received a well-recognized appellation, this system, which has nothing Hellenic except its *name*, might, with greater propriety, have been denominated "*Christian Brahmsm*"—not an altogether unnatural *graft* upon an Indo-Germanic *stock*.

are its utterances? what the comforts and consolations which it offers?——

“Heed not, O man! the dreams of those who would banish God into solitude. He is everywhere. He is in thee and around thee. Thou art thyself a part of God—an incarnation of Deity—God manifest in the flesh. Wherever intelligence operates—wherever mind is exerted—wherever life puts forth its energies,—there is God: for He is the animating Principle, the Soul of the Universe; which is His body, the outward and visible form of Him who filleth all in all.

“Truly spoke the prophets of the Hebrew race,—*truly in their measure*. They saw not into *all* truth; few have done so. They spoke of God as One. They spoke of Him as a Spirit. They spoke of Him as the Sustainer of the heavens and the earth. They spoke of Him as Life, and Light, and Wisdom. But they failed to pursue these truths to their legitimate issues: and while they regarded Him as One in whom we live, and move, and have our being, failed to regard Him as the animating Soul of all.

“Wisdom, indeed, was theirs—marvellous wisdom to be possessed by a rude nomadic people—scarcely surpassed by that of Confucius and the early worshippers of Brahm. Deep was the insight possessed by Moses into human character, and the springs of human action. Beautiful and majestic are the strains of David and Isaiah. Sublime and almost perfect are the morals of Jesus. Sound and heart-stirring are the preceptive teachings of Paul. Oh! that these men, these heroes, could have broken the shackles with which their narrow Hebrew training had bound them, and embraced *the whole truth* as we now embrace it. Then would not so many mistaken systems have been built upon their teachings; and religion have been the Babel of the world!

“What, O man! is the nature of thy anxieties, and of what dost thou complain? Does pain annoy thee? Heed it not. It is an inheritance of organized material existence. But matter is only the grosser mode of being—mind the purer. Let mind triumph over matter; and thus thou wilt exhibit more of the life of God. For, after all, this subjective Universe is little better than an unreality; the true reality is mind—is God.

"Art thou troubled about the deeds of thy past life, or haunted by the spectres of superstition which a narrow education has engendered? Trouble no more. God will never ask thee what thou hast done, or what thou art. He claims no debt from thee. To *create* is one of the necessities of *His* nature. To *enjoy* is the chief end of *thine*. Good and evil are merely human distinctions. 'Whatever is, is right.' All things are good, or destined to work out good: for all things proceed from God—yea, all things are parts of God.

"Art thou afraid of death? It is but the return of a ray of intelligence to the great centre from which it sprang—the absorption of thyself in the general nature of the Deity, from which for a time thou hadst proceeded. This is true communion with God. Few have ever attained to it in this life: and those few have only done it by breaking through the illusions of the senses, and escaping entirely from the blinding influence of the passions. Thus they rose to that state of supreme beatitude in which they had no consciousness of existence apart from the Divine Essence.*

"Would'st thou, then, worship God? Pursue thy proper avocations—work is the most acceptable worship. Would'st thou praise him? Praise the heroes who have been His most glorious manifestations upon earth. Constantly regard Him as thine Animator, the common Father of all things; and give no heed to the blinding dictates of a mistaken Theology.

"Trouble not about the future. Listen to no tales of retribution in another state to come. The ray but returns to the light from which it proceeded—the atom to the centre from which it was projected; and how canst thou suffer when thou art swallowed up in God? Give thine energies to the present life. Strive after reform and progress here. Man will never be in a proper condition to make the best of this life, while his hopes and his thoughts are fixed upon one to come:† nor will this world ever be regenerated while he regards the higher ends of his existence as awaiting him in another."

* See Buyers's account of the Gosains.—"Recollections of British India," p. 359.

† "The idea of a future world is the last enemy whom speculative criticism has to oppose, and, if possible, to overcome."—Strauss *Glauben*, iii. p. 739.

306. —Will speculations like these allay the anxieties of man? Will they smoothen that pillow which is the portal to the grave? Will they quiet his conscience under a sense of responsibility for those acts which he *feels* were the product of his own individual will? Oh, no! While *man demands* responsibility *from* man—while he acknowledges that laws and restraints are right, and that each human being should be accountable to society, no transcendental mysticisms can entirely obliterate the instinctive sense of *responsibility to a higher and invisible Power*. With anxieties subdued, perhaps, but not allayed—with thirst often intensified by the alcoholic draughts of transcendentalism he has been quaffing, he seeks a purer fountain, he asks the voice of another director—the voice of THEISM. And what are its utterances? Listen:—

307. “Wherefore art thou sad, O man? and why is thy soul disquieted within thee? Hope thou in God. Turn unto Him with full purpose of heart. And thou shalt yet praise Him who is the health of thy countenance and *thy* God.

“God is nigh unto all them that call upon Him—unto all such as call upon Him in truth. He will fulfil the desire of them that fear Him. He also will hear their cry; and will save them.

“Dost thou feel that thou art weak and feeble? Fear not! The everlasting God, the Creator of the ends of the earth, fainteth not, neither is weary. He giveth power to the faint: and to them that have no might, He increaseth strength.

“If thou canst not see Him in His works, it is because thy foolish heart is darkened. If thy soul be estranged from Him, the divergence proceeds from thine own erring will. Like as a father pitieth his children, even so He pitieth them that fear Him: for He knoweth their frame; He remembereth that they are dust.

“Listen to the echoes of nature, which so constantly reverberate His praise! They have ever been sounding since the natal day of the Universe, though many have misinterpreted their accents, or caught not the notes of the song.

“Lift up thine eyes on high, and behold who hath CREATED these things, that bringeth out their hosts by number: He calleth them all by names: by the greatness of His might; for that He is strong in power, not one faileth.

“Gaze forth into the regions of infinitude, and watch those radiant orbs in multitudes which no man can number. See there exemplified the wisdom and the care of Him who made them. He fixed them in their orbits, and His power sustains them. He touched them with His finger, and they run on their course rejoicing. They jostle not. They stray not from the path in which He guides them—obedient to the mandate of His will. In the system of which thy world is a member, and through which thy calculations can carry thee, thou may'st see how He has established the whole. He has given to every orb such a distance and velocity as render it a stay upon the others; and thus teaches thee that the creatures of His hand are guarded with a Father's care.

“Look down into the earth on which thou treadest. Analyze its compounds. Calculate its forces. Mark its treasures. Thread thy way back, in imagination, through the vistas of the ages to the period when life first commenced upon its surface. See successive creations, each pointing upwards to something higher. See treasure after treasure laid deep in earth's bosom, then raised by dread convulsions to its surface, that the spoils of former eras might be laid at thy feet, and all thy necessities be supplied. Will not these things testify that thou art cared for by thy Maker, who prepared thy habitation ere He placed thee upon it, and provided for thy pleasure as well as for thy wants?

“Mark the chemistry of the soil, and of the air thou breathest. See how they furnish vegetation with every principle it needs. And mark how the very refuse, which is offensive to thy organs of sense, will, if buried beneath the surface of the earth, by entering into new combinations, re-load thee with abundance, fill the air with fragrance, and feast thine eyes with fresh forms of luxuriance and beauty. Or watch the constant interchange of benefits and blessings between the vegetable and the animated world—how each absorbs the other's poison, and gives back that on which the other's life depends. And let these, too, teach thee of God's tender, providential care.

“Mark the multitudes of creatures that dwell in the sparkling waters, that flutter in the air, or wander on the surface of the earth. See how each is exactly adapted to the existence

of the others, and to the sphere of its own being. And mark how each is the subject of *enjoyment* as it fills its allotted station, and pursues that course to which it is impelled by its instincts and desires. And let these, too, teach thee that God is a God of active benevolence, who views with complacency the enjoyments of the creatures He has formed.

“Examine thine own frame, so full of astounding wonders—thy firm supporting bones—thy vertebral column—thy muscular and nervous systems—thy organs of the various senses, with their ramifications in thy brain. What evidences are here of benevolent contrivance—of regard for thy necessities, thy convenience, thy delight! They tell thee of a God who rejoiceth in thy happiness, who joys in giving joy.

“And thou hast the echoes of all these multitudinous voices in the inborn instincts of thy nature, which, though sometimes they may lie latent, or be warped into abnormal conditions, will ever, under due development, teach thee to fear and shun, or to trust, to worship, and adore, *a Living and a Present God*.

“The Universe could never have existed without a Being to create it; since from nothing, nothing could arise.

“No mind could have expatiated on its greatness, or revelled in its beauties, without a preëxistent mind to give it birth.

“No regular and salutary laws could have prevailed through nature, adapting every portion of being to the rest,—providing for all contingencies, and uniting all the Universe into one,—without a Being omnipresent and omnipotent, all-comprehensive in wisdom and in power.

“No forces could perpetuate the operation of those laws through period after period of never-ending duration, unless He who created the Universe sustained it still.

“No evidences of benevolence would ever have been exhibited in the provision which is made for the enjoyments and necessities of all things, unless a God of goodness were their Maker.

“Mysteries there may be in His dealings with the world: but the key to their unravelment hereafter shall be found.

“Divergences there may be from the path of right: but the wanderers shall be subjected to counter-attractions: and thus means shall be provided that the balance be restored.

“Rejoice, then, O man! in the Source of thy being! Rejoice in the light of *His* light! Cast thy burdens upon Him who is able to sustain them; and let thy heart be thankful for the knowledge of A LIVING AND AN EVER-PRESENT GOD!”

308. Thus have I permitted each of the antagonistic systems to state its own case; to state it fully and clearly. I grant that THEISM, without the aid of Revelation, might never have obtained such distinct embodiments in words; but this would not have been because nature's teachings were different; but because man could not clearly understand her language. And neither, on the other hand, would Pantheism, or Pausi-Theism, have been able to express themselves so clearly without the same extrinsic aid. For if they had not borrowed from despised “Hebrew sources,” Buddhism and Brahmism would, in all probability, have been the highest point of development to which their adherents could have attained—the Pythagorean Philosophy being rather a degradation than a development of earlier and more consistent views. And, now, which of these systems is most consistent with the teachings of nature, the conclusions of reason, and the implanted instincts of mankind?

309. The utmost extent of truth at which we can arrive by strictly *a priori* means, may be, as has been confidently asserted, the simple, and almost self-evident, propositions, that “something Infinite has existed from eternity;” and that “every effect must have an adequate cause.” But at the exact point where *a priori* reasoning fails, a *posteriori* argument takes up the question. By considerations drawn from the things that are seen, it traces out the attributes of that Infinite *something* which is unseen; and from the nature of the effects which we behold, deduces the nature and qualities of their efficient cause. By the one mode of argument, ATHEISM, which denies the existence of an Infinite Being, is shut out. By the other, not only is the *denier* of the Divine Existence convicted of error, but PAUSI-THEISM and PANTHEISM are shown to be partial and imperfect views—drawn, not from the entirety, but from some of the passing phases of nature.

310. The Atheist acknowledges that *something* has existed from eternity, but denies its infinitude; declaring *that some-*

thing to be the material Universe. Yet the impossibility of an elapsed, or even of an *elapsing*, eternity, and the undeniable lapse of time, are a sufficient evidence that time "is dependent on a Being superior to its conditions of duration." And if this be true of time itself, still more unavoidable is the inference that it is true of the material Universe, which exists only under conditions *of* time.

311. I showed, in the first Chapter of this Treatise, that the Universe being finite, or limited, could not be eternal; and, therefore, could not be that Infinite something which has existed from eternity. I showed, in the second Chapter, that finite life must have had its origin in Infinite Life. By these two processes of proof, Anti-Theism, that is, Atheism in the *strictest* sense of the term, was overthrown.

312. In the expanded Universe, and in the arrangements and motions of its orbs, we proceeded, in the third Chapter, to search for indications of intelligence—of mind. We found ORDER universally reigning, where elements out of which confusion *might have arisen*, and *might still arise*, were ever-present and abundant. We found contingencies constantly provided for, by a system of compensations of the most intricate and elaborate description—vast and comprehensive, yet descending to infinitesimal minuteness. We found all things proceeding under the influence of laws, unfailing and unerring, which were evidently the elaboration of unlimited intellect, that could grasp at once detail and concrete,—the minutest fragment and the mighty whole! And these facts, also, we found to be utterly incompatible with the denial of an Intelligent Cause. Yet the Semi-Atheist worshipper of nature, the Pausi-Theist, and the Pantheist, could accompany us on at least a portion of our way. The man who will "not say there is no God, but that it is extravagant and irreverent to imagine that Cause a person:"* the Philosopher who so devoted himself to the study of physics, as to see law everywhere and God nowhere; and the "God-intoxicated man,"† who sees in the Universe only a manifestation of God's personal presence, and considers himself as an incarnation of Deity,—could here investigate what

* Atkinson's Letters to Martineau.

† Novalis's description of Spinoza.

we investigated, and admire what we admired. The two first of these classes seek the proof of their own theory in the evidences of perfect wisdom which are discernible. The latter looks naturally for marks of consummate wisdom in every part of that

“Stupendous whole,
Whose body nature is, and God the soul.”

313. The intense Physicist,—as though so spell-bound with admiration of the *seen*, that he is unable to lift his thoughts to the *unseen*, from the very perfection of nature's laws, would argue for the banishment into distance or quiescence of their great Originator. He sees sequence following sequence in regular and perfect order. He sees all deviations and contingencies provided for with unerring forethought; and forgets that the *present* requires a Deity as much as the *past*; and that the *laws* by which the Universe is regulated would be inoperative without the *forces* by which it is sustained—the actings of an energy Divine.

314. Yet, when he has “divorced the Creator from His creation, the mystery of mysteries still remains—how, in this case, does the Creation stand? Second causes we see acting on second causes, but the impetus that gives action to all causes, where is that? Let the first link be wanting, and what becomes of the chain? Let the first impulse cease, and what becomes of the second, and the third, and the rest? If Law supposes a Law-maker, must not the administration of Law equally suppose the presence of an Administrator? Describe the Universe as a machine: but every machine is made up of many powers, all of which depend on some *one* power. Let the main-spring of the watch cease, and everything ceases. The first and great moving power of the Universe cannot be from [the Universe] itself. Extend the law of dependence as you may, it must rest at last with the Creator: and where it rests at last, it rests wholly. Law is nothing except as it is applied, mechanism nothing except it is worked. There must not only be living wisdom to devise, there must be living power to impel:”* or the material Universe would soon resemble the

* “The Age and Christianity,” by Robert Vaughan, D.D., pp. 297, 298.

beautifully organized body from which life has departed for ever.

315. The Pantheist, to escape from these absurdities, runs into a greater one. To keep up a constant supply of motive power, he makes his machine self-animated. To account for the continuation of life and energy in the Universe, he makes that Universe God, or God its animating Soul. And this system might possibly be made to comport with some sort of orderly arrangement. Yet it is difficult to conceive that an intelligence which has no personality, and which makes, or *obtains*, its highest manifestations in the intelligence of man, should have ordained such a system of compensations as nature holds out to our view. The laws of the Universe evidence either a power of calculation, or that Infinite *prescience* on which the individual power of calculation rests as its *substratum*, its efficient source and centre. But this implies *personality*. They exhibit, continually, a choice of the best out of many possible modes of operation; and this is an evidence of intelligent *will*. And the Deity of the Pantheist can neither possess *personality* nor *will*.

316. But cosmical arrangements were not the only evidences of mind or intelligence which we discovered in the Universe. In addition to the prevalence of universal *order*, we found, on pushing our investigations into the structure and composition of the earth and its garniture, indications of DESIGN. *Order* is an evidence of intelligence, and, therefore, of the existence of dominant mind. But its evidence is rather inferential than direct. In that which exhibits *design*, we have something beyond this—an evidence of power to order things with purpose and contrivance; yea, not merely of intelligence and power, but of personality—of a Being who combines His powers and faculties, or attributes, in intelligent action. This, then, is a more perfect clue by which to thread our way through the labyrinth of nature. The vastness of the Universe might be oppressive to our minds. Its magnificence might dazzle—its mysteries perplex us. The very *order* which is exhibited everywhere *might* induce, as it *has* induced, the idea of unwilling and uncontrollable necessity—of stern inexorable fate. But man, by looking at the effects of *design* in his own operations upon

physical things—by comparing the changes and arrangements *he* effects in the material world with the purpose which preceded them, and thus learning the existence of intelligence in himself—is not merely led to *infer*, but to *discover*, intelligence in the efficient Cause of all things. For it has been sufficiently apparent, in our glance through the Universe, that there is everywhere not only power to produce and keep in order, but intelligence to *design*; not only vastness and magnificence, but adaptations, adjustment, and contrivances without end. *Design* is everywhere apparent,—the subordination and adaptation of means to the accomplishment of a destined end. And this will neither comport with the idea of a Being who created the Universe, either perfect or in germ, and placed it under the operation of undeviating laws, then—having no *design*, no object, in view—left it to its fate;—nor with that of One who, entirely destitute of *will*, creates only as a necessity of His nature, and to whom man is therefore “less indebted for his existence, than *He* is to man as a manifestation of Himself.”

317. But we proceeded yet further. We saw in the Universe, not only constant evidences of *design*, but somewhat of the nature of its intent and purpose. We found indications of active benevolence, or GOODNESS, sufficient to induce the belief that He who made it took an interest in its concerns—in the welfare and well-being of the creatures He had formed.

318. All the adaptations and contrivances of nature, while clear exhibitions of unfailing wisdom, of intelligent design, were seen to be subservient to benevolent purposes—to ends which had the communication of enjoyment or happiness in view. The physical constitution of the earth and its atmosphere; the relative quantities and arrangement of its elements; the nature of vegetable productions; the inherent principles of their seeds; that peculiar property of the surfaces of things which causes them to separate certain rays from the spectrum of light, and thus convey to the mind the idea of colours; the combination of elements which causes the emission of odours; the provision of sustenance, grateful to the taste, as well as nourishing to the body,—all evidence the design of contributing in every way to the enjoyments of organized and sentient

creatures. While the very constitution of their bodies, exhibiting a thousand unappreciated adaptations, and the gift of instincts, desires, and appetites, in perfect keeping with the things and objects among which they are called to move, equally exhibits the abounding GOODNESS of the great Author of all.

319. It is true that some perplexing considerations meet us here. Man, though evidently made for happiness, is *not* happy : nay, happiness is rather the exception than the rule. The world, though evidently calculated for enjoyment, is yet often filled with sorrow and wailing. The enigma of evil, though many Philosophers have fancied they could solve it, remains, in spite of their efforts, an enigma still. It is, undoubtedly, less perplexing than it *has been* ; but it is sufficiently perplexing after all ; and demands a higher intelligence than man's for its unravelment. Yet the existence of evil can really give no counter-testimony to nature's universal exhibition of benevolent design. It rather bids man pause to consider *whether he can be in his normal condition*—whether these perplexities of his mental and his moral nature are not a proof that the derived powers of his soul, which should be in communication with Deity, have chosen to be independent, and turned back against their source. It should teach him, moreover, instead of seeking to degrade the All-perfect One, by making Him the Soul of the world, to seek if there be any means by which *he* can be reëxalted to communion with God.

320. GOODNESS, in spite of evil, is apparent everywhere—goodness *overcoming evil*, and rendering its very existence subservient to benevolent ends. Yet, active benevolence, or GOODNESS, as a distinguishing attribute of Deity, will neither consist with the notion of a God retired, quiescent, or absorbed, who takes no notice of, no interest in, the universe of matter ; nor with that of a mere animating soul, without personality, in whose regards—*if he (or it) be capable of regards*—there is no essential difference between good and evil ; who, guiltless of providing for emergencies, sees, with the same equanimity,

“ Atoms or systems into ruin hurl'd,
And now a bubble burst, and now a world.”

321. But there was another principle which we observed in nature—the principle of UNITY. *Confusion*, like error, is *manifold*. *Order*, like truth, is *one*. No fortuitous rubbing together of surfaces could make the disjointed efforts of *unintelligent* nature (even if it were capable of effort), blend harmoniously into a perfect and homogeneous whole. Yet, we saw, in our examination of the Universe, each individual thing and creature adapted not only to its own sphere of being, but to the sphere and being of every other thing and creature. All creation blends in harmony, and thus manifests its essential unity. Creatures innumerable live and enjoy life, and fulfil every purpose of their being, just as perfectly as though the Universe were made for them alone. Every orb, and every system, is placed at such a distance each from other, as not seriously to interfere with each other's motions—their slight aberrations being always compensated by counter-attractions. Thus, from animalcule to galaxy, there is no jostling or confusion. Each has its own appointed sphere of operations, and each fulfils the purpose of its being; marking the whole as the work of *one* intelligent Creator.

322. Here we join issue with the Atheist again. The Pausi-Theist, and the Pantheist, have both a ground, or principle, of unity; and the Idealist finds one in the unity of his ego. But “the Atheist who believes in the world can give no account of its unity in multiplicity, can assign no cause for its harmony in diversity. If he refuses to go beyond nature, it may be demanded why he goes beyond himself. Let him extend his Scepticism consistently to its limits; and regard *all* appearance as illusory. But if he allow the existence of an objective world, let him carry out, to the full extent of its application, the principle of judgment which has guided him. He will find it to be an unavoidable conclusion, from his own admissions, that the finite must rest upon the Infinite—the temporal on the Eternal—the caused on the Uncaused—the conditional on the Unconditional. He will find that the world he sees demands *one* Cause of its existence, *one* Combiner of its diversity.”*

323. But we observed, also, the operations of another prin-

* Thompson's “Christian Theism,” vol. i. p. 217.

ciple—of MIND. And here, once more, we come into collision with the Atheist. For even if it were possible for the Universe to be eternal, still *mind* could not exist without some MENTAL SUBSTRATUM upon which to rest. *Mind* has been described, and not without reason, as the only entity of whose existence we have any *direct* knowledge. We believe in the existence of the material Universe. But we *know* only of the existence of our own mind—of our own cognitive powers. The mind *may* be deceived by every kind of phenomena, as it *has* been deceived in the supposition that colour is a property of bodies, simply because their surfaces are capable of separating different rays from the spectrum of light, and dispersing these in greater abundance while they absorb the rest—and thus of conveying the impression or sensation of colour to the retina. But, as regards its own existence, the mind cannot be deceived. Of this, it is not merely *convinced*, but *conscious*. Whatever appearances we may behold around us, “it is the mind which sees, the mind which translates the movements of vibrating medium into the sensations of light and colour. All is darkness without the mind. There is no picture of visible nature unless the mind be there to behold it. It is like an invisible photograph, which wants the requisite agent to bring it out; or like a chymical picture, which is rendered visible by the heat of the fire. It is brought out by the vital warmth, and fixed by the chymics of the living soul.” *

324. Our own existence, then, is a proof of the existence of *mind*. And the existence of finite mind leads, analogically, to a belief in the existence of Infinite Mind. If we gaze abroad upon the face of nature, its magnificence may excite our admiration, its contrivances our wonder, its stupendousness our fear. Yet, each man can look within himself, and find a something which is still more “fearfully and wonderfully made.” More wonderfully, for he, though a creature of yesterday, can observe and calculate the movements of the Universe of worlds, while it sees not him, and has no knowledge or understanding. More fearfully, for its order is fixed and stable, from which it possesses no power to depart; while gazing into the depths of his own being, he can say—“In myself there is an awful choice

* Thompson’s “Christian Theism,” vol. i. p. 87.

between order and disorder : and I am not bound in the necessity of nature." * And when he rationally contemplates the great entities among which he moves,—when he sees, not only ten thousand objects of interest and beauty which he can, in some degree, comprehend, but far more, at once in number, in diversity, and in vastness, which are utterly beyond the sphere of his comprehension,—when the telescope and the microscope are constantly revealing new marvels, and teaching him that the little he knows is as nothing in comparison with the unknown,—is there no unavoidable feeling that leads him analogically to conclude there must be an Infinite Mind, which contemplates and grasps the whole ? The belief is a necessity of his nature, if he has not previously prostituted his mental powers ; and he is forced to it by the process of induction, if that process be not dead within him. For how could there be order and contrivances everywhere, without *Mind* existing everywhere ? And how could there be unity in all things, unless that *Mind* were ONE ?

325. Further. Our glance through nature, and its various manifestations of *mental power*, introduced to our notice, not only exhibitions of the exercise of intelligence, but also of the exercise of *will*. There is will, as well as intelligence, exhibited in the motions of the merely instinctive creature, as may readily be discovered by attempting to impede its movements in any particular direction : for who has not observed the struggles of the winged insect to penetrate through the transparent glass which impedes its progress ? It may be, indeed, that the *will*, like the *intelligence*, is not its own, but merely an imparted impulse ; yet its actions clearly evidence the fact of both *intelligence* and *will* existing *somewhere*. In some of the higher creatures, and especially in man, we have seen reason for believing that both intelligence and will exist independently. But even if it were not so ; if, with the Atheist, we came to the conclusion that will, in man, is no reality, but only an appearance—if thus we reduce him to the level of an instinctive creature, the necessity only becomes the greater, that he should look beyond himself for its reality,—beyond himself to an In-

* Thompson's "Christian Theism," vol. i. p. 154.

finite Personality, in whom centres at once every exhibition of *intelligence and will*.

326. The Pantheist believes in the existence of Omnipresent Mind, but denies its personality. Yet, personality is absolutely necessary to the exercise of intelligence and will. The Pausi-Theist, on the other hand, does not *deny* the possibility of there *being* an Infinite Personal Intelligence—*provided* He be not allowed to interfere with the concerns of the Universe. He merely *ignores* it. The thing is not in his line. It is an entirely different article from that in which he deals. Others may indulge in such speculations if they please. *He* is contented with observing, and reasoning from, the processes of the physical Universe; and here he can discover only *Law*. Thus each grounds his belief upon certain phases or appearances of nature. *THEISM only* is consistent with the whole.

327. And now, lastly, we come to consider, in their relation to this subject, the Instincts and Faculties of the Human Soul.

It was lately asserted, by a calm inquirer, who had no particular theory to substantiate, but pursued Psychological Investigations for their own sake,* that “The disposition of man, even in his most degraded state, to believe in supernatural agencies, is so universal, and so manifestly the result of his peculiar constitution, that we must regard it as having very much the character of an Instinct. As he advances in knowledge (continues the same writer), and has leisure for observation and reflection, the perception of the beauty, grandeur, and harmony of the Universe, of the evidence of intention and design, and of the adaptation of means to ends in everything around him, and of the large amount of good, with the small proportion of evil, which is manifested in the condition of all living creatures, leads him to the knowledge of an intelligent and beneficent Creator, to whom he *may*, at any rate, be responsible for the right use of the faculties with which he is endowed; and thus the religious sentiment becomes ingrafted on the rude Instinct of the savage.”

328. This Instinct, though it may in some sense be compatible with Pausi-Theism and Pantheism, is wholly incompatible with Atheism: and there are impulses and feelings

* “Psychological Inquiries,” by Sir Benjamin Brodie (1854).

connected with it, of no abnormal growth, which are as utterly incompatible with the two former systems of belief—I mean the feeling of dependence, and the involuntary and instinctive promptings to prayer.

329. Man would not have been taught to depend upon a being whose nature is such that he, or rather it,—for why should we apply the personal pronoun to the *impersonal*?—is unable to aid him. Nor would he have been taught thus to exercise the spirit of dependence upon One who, though the Originator of his existence, has retired from the Universe, and *never interferes*. Yet that spirit of dependence, that hanging of the soul upon something above itself and beyond itself, is constantly with us, in every period of our existence; in infancy, childhood, manhood, and old age—right onward from the cradle to the grave. It accompanies us in every stage of our progress from barbarism to civilization. It ingrafts itself on the strange follies of the heathen, from simple fetichism to polytheism of every grade. It is seen in the superstitions of the ignorant, interwoven with their belief in spirits and conjurations, in witches, and genii, and fairies, and *DAIMONS* of every name: and is equally seen in the more rational worship of the Deist,* and the firm faith of the Christian. Men may, perhaps, be found who form exceptions to the rule, who have reasoned themselves out of their native feelings, and stand, amidst the gardens of nature, like bare bald rocks on which no seed can germinate; but of the majority, it may with truth be said, that, like the implanted instincts of the unreasoning creature, this spirit of *dependence* is a portion of their being, and they part with it only with their life.

330. Nor is *prayer* less universal than the spirit of dependence; for it is simply its outward expression, its audible utterance, its embodiment in words. Bold as the assertion may appear, man, though, in the majority of instances, he prays not aright, yet, *everywhere prays*. The most brutish and degraded of our race, the veriest savage, prays. However deeply sunken below his normal condition, he has his charms and talismans, to which he looks for protection from evil, and to which, therefore, though almost unconsciously, he prays. The

* As instance Lord Herbert of Cherbury.

Pagan prays. The Devil-worshipper prays. The Mahomedan prays. And, inconsistent as his supplications are, the Pantheistic Brahminist and Buddhist prays. The vilest and the lowest swearer prays, though his prayers are but imprecations addressed to some unseen Being to pour down curses on himself or others. The very Atheist prays. His cold philosophy may usually smother and keep down the instinctive promptings of his soul; but there are times of weakness, for I have seen and known them, when nature will out—seasons of trial and perplexity, when, feeling his dependence, he has involuntarily apostrophized, in language of supplication, the principles of nature, or asked of God—with an “if there be a God”—to render him assistance.

331. And what is the bearing of the evidence which this instinct offers? What tells it of the nature of the Deity? Man may pray to the most senseless of things and creatures—to rings and bits of metal—to stocks and stones—to four-footed beasts and creeping things. He may offer his devotions by proxy, through one of sacerdotal *caste* or *order*, whom he regards as a mediator with his God. He may utter no words, send forth no cry, but merely lift up his heart to the Unknown, with an agonizing desire for aid. Yet, even prayers like these are a testimony at once against the Pantheism that robs God of His personality, and the Pausi-Theism that thrusts Him from the Universe, and leaves the moral and responsible creature under the cold dominion of inexorable and unconscious LAW.

332. And, oh! in connection with this subject, what evidence does the Christian possess of the *reality* of his faith! I could appeal to the experience of ten thousand times ten thousand; to the experience of men who are as sane, and as able to conduct a close and searching investigation, as any of their fellows; to the experience of men who are as capable as the acutest Philosopher of analysis and synthesis, of generalization and induction. I could appeal to these, that, in their own experience, they have had convincing proof of the existence of One to whom it were needless to apply the ironical language of the prophet: “*Cry aloud; for he is a god: either he is talking, or he is pursuing, or he is in a journey, or peradventure he*

sleepeth, and must be awakened:"* experience of the existence of One who is neither a slumbering Brahma, nor an absorbed Buddha; but who both hears and answers prayer. I speak not now of *daily* devotions, which, however duly performed, are sometimes cold and formal. I speak of the outpourings of an overburdened heart—the wrestlings with an unseen Being, of a creature who is convinced of his dependence, and of the power of that Being to render the necessary aid. Such prayers are often made. Such prayers are often answered. And though the cold Physicist may deem these things but superstition or fanaticism, their effects are sometimes as clear and palpable as any physical fact presented to the reasoning powers.

333. Thus have we passed, in brief, through all the various aspects of nature, summing up, in a lesser space, the evidence which we had previously gathered more in detail; and have seen that, though there are enigmas which Revelation only can be capable of solving, "Creation's Testimony" is clear and overwhelming to a *Being all-powerful, wise, and good, "a single conscious Being outside of nature," of which He is the Author, not the Soul.*

334. Yet, how prone is man to rest in the things that are seen, instead of penetrating through them to the unseen. He forgets that as art can be no more than an imitation of nature, and science no more than its counterpart, so "Nature itself † may be described as no more than the symbol of a great sacrament, setting forth, by the Divine ordination, the spiritual relations between man and the Infinite. All its science adumbrates the science of moral truth—all its beauty the beauty of goodness. Its life and happiness exist as the types of a higher life, of a higher happiness. The certainties we derive from it are symbols of the higher moral certainties to be derived from its great Author. The pleasures it affords are but faint emblems of the more exquisite pleasures to be found in the consciousness of His smile who has given it being. Thus nature, in all its wonderfulness, gives us but the unconscious image of the

* 1 Kings xviii. 27.

† This passage is altered and abridged from Vaughan's "Age and Christianity," p. 291.

Living Wonderfulness that lies beyond. It is but as the vesture in which the Great One has arrayed Himself,—the mere letter of existence, of which He is Himself the Spirit,—the shadow, of which He is Himself the Infinite Reality.”

335. Oh! Author of our being, and Implanter of our instincts, look down in pity upon the weary-footed wanderers from Thy fold! Unconscious of their wants, they turn away in recklessness from the kind hand that would supply them. They utter the instinctive exclamation, “Who will show us any good?” yet refuse the good that is offered them without money and without price. They seek, long and earnestly, for wisdom—they dig, deeply and diligently, for its hidden treasures: yet, when Wisdom crieth without; when she uttereth her voice in the streets; when she crieth in the chief place of concourse, in the openings of the gates; when she putteth forth her voice on the tops of the high places, by the way, in the places of the paths,—they refuse her treasures, which are better than rubies; yea, better, beyond comparison, than all other things that may be desired. They seek for peace, yet shun the God of Peace. Tossed, as on the waves of a tumultuous ocean, or sinking, despite their struggles, in the quicksands of uncertainty, they long for conviction, for stability, for rest, yet turn away in ignorance from Him who hath said, “Come unto me, all ye that are weary and heavy laden, and I will give you rest.” Hapless possessors of a *felt* but unacknowledged responsibility, shall they wander in their weariness for ever? Oh! Thou Eternal and Almighty One! have pity upon those who have no pity on themselves: remove the darkness from their minds, the enmity from their poor wayward hearts: and hasten the coming of that better day, when the earth shall be covered with Thy glory as the waters now cover the dark caverns of the sea.

END OF PART I.

CREATION'S TESTIMONY TO ITS GOD.

PART II.

REVEALED RELIGION.

CHAPTER XIII.

REVELATION CONSIDERED — INTRODUCTION — REVELATION THE ONLY SUFFICIENT MODE OF ATTAINING TO A KNOWLEDGE OF THE DEITY — REVELATION POSSIBLE, OR PERFECTLY CONSISTENT WITH GOD'S EXISTENCE AND ATTRIBUTES, CREATION ITSELF BEING A MANIFESTATION OF HIM, A REVELATION THAT HE IS—REVELATION A PRIORI PROBABLE, FROM THE DARKNESS OF THE HUMAN MIND, AND THE UNCERTAINTIES AND PERPLEXITIES IN WHICH MAN IS INVOLVED, WITH REASON AND NATURE ONLY FOR HIS GUIDE—REVELATION MORALLY NECESSARY, IN ORDER TO THE CONSISTENCY AND PERFECTION OF GOD'S OPERATIONS, AS AN ANSWER TO CERTAIN INSTINCTS IMPLANTED IN THE HUMAN MIND—AND IF MAN'S SOUL BE IMMORTAL, AND HE BE A RESPONSIBLE CREATURE DESTINED TO ANOTHER STATE OF EXISTENCE, A REVELATION ADDITIONAL TO CREATION (ONE OF GOD'S NATURE AND HIS WILL) TO BE NATURALLY EXPECTED FROM THE DIVINE WISDOM AND GOODNESS.

336. A SOLITARY traveller lands upon some unknown coast at morning twilight. Mists veil the landscape, and obscure the sky. Adjacent things assume unreal shapes, and distant ones are still more shrouded with vagueness and uncertainty. Upwards he walks along the beach, whose paths are washed by each returning tide, obliterating every step of man. He looks around, in this uncertainty, for something to direct him. With strained eyes he sees, or thinks he sees, the adjacent town: yet all *may be* but fancy or illusion. That which he takes to be the neighbouring spire, *may* only be some tall and upright tree; and that which seems the body of the church, may prove a mound or hillock. Yet, on he goes,—believing, hoping, seeking,—when, lo! the sun arises; mists disperse. Uncertainty rolls westward her thick clouds of obscurity; and all the landscape brightens beneath his view, in the full blaze of day.

Thus is it with the man who fondly seeks, in nature's twilight, to find out God, or understand him to perfection. And so irradiating is the light of Revelation when it dawns upon the soul.

337. In nature, we have evidences and indications—from Revelation only can *assurance* be obtained. From nature, we may obtain occasional glimpses of the truth—by Revelation only can we be admitted into the full blaze of its meridian day. Nature furnishes us with matter for surmise and expectation—Revelation only can teach us if those surmises are just, and those expectations likely to be realized. Nature presents us with a thousand enigmatical questions, on which our ingenuity may be profitably exercised—but Revelation only can tell us whether that ingenuity be rightly or wrongly directed, whether those enigmas *are* solved, or whether our wisest attempts at solution are but as the baseless fabrics of our dreams. Without Revelation, all is doubt and uncertainty; with it, all is clear and plain. Without it, man may believe in an all-presiding Deity. With it, he may *know in whom he believes*, and *worship whom he knows*.

338. From considerations independent of written Revelation, we have gathered evidences of God's being; and seen somewhat of His nature. We have witnessed all creation testifying to His existence, and to some of His attributes, in the wisdom, power, and goodness it displays. But it must not be forgotten that we have been aided in our search by the full light of Revelation. Had we been shrouded in the mists and twilight of nature, those evidences might have appeared more vague and uncertain in the character they assumed.

339. We may, however, on this threshold of our argument, assert, that Revelation is, *first*, POSSIBLE, or perfectly consistent with God's being and attributes,—creation itself being a Revelation of Him.

Two facts, perhaps, may be made manifest by reason, aided by the light of nature only—that there is a God; and that He is *capable* of revealing himself to His creatures. Those facts *were* made manifest by Philosophers of old, who had reason and nature only to guide them; for if they received *any* light through traditionary remains of an earlier Revelation, its

rays were so distorted by the media through which they passed, as to be calculated rather to mislead, than to bring them to the knowledge of the truth.

340. "The things that are made,"* testified from the creation of the world to the things that are invisible, even the eternal power and Godhead of their Maker; and as a Revelation of Him in whom immensity and eternity inhere,—by whose power they were called into existence,—they also testified that He was a Being who was capable of manifesting himself to the creatures of His hand. HE IS: and His creation of the Universe is an outward testimony to His existence—a *Revelation that HE IS*, to the intelligent and apprehensive among the beings he has formed. Revelation, it is true, has interpreted to us the language of nature, the meaning of which was aforesaid so obscure, that only Philosophers could decipher it. Yet, Revelation, in the passage to which I have referred (Romans i. 20), expressly intimates that man, wandering on in gross darkness, is without excuse, because nature's light should have taught him, at least, the fundamentals of religion. It should have taught him that there is an eternal, self-subsisting, necessary Being, of sufficient activity, life, power, wisdom, and goodness, to have been the Maker of the Universe; because the Universe now is, which without Him never could have been, much less have been such as we now see it is. Nor is this the full amount of what creation, that first manifestation of Deity, is capable of revealing. It follows, from the existence of the visible Universe, that God can have influence upon His creatures; for by His influence they were made, and are sustained; since they could no more subsist by themselves, than make themselves, or of themselves spring out of nothing. Possessing, then, this influence over His creatures, we see, first, that a Revelation from God is *possible*.

341. But Revelation, in the second place, is PROBABLE. From the whole realm of nature, and the adaptations and compensations it everywhere exhibits, we have seen reason to conclude, that, if anywhere, by whatever cause, an unhealthy or improper condition of things is induced, it will be met by its appropriate corrective. And the darkness of the human mind,

* Romans i. 20.

and man's uncertainty as to his own nature and destiny, as also of the nature and claims of Him to whom his adoration and worship are due, can only meet its appropriate corrective in Divine Revelation.

342. It may, indeed, be asked, though man had wandered wildly, with reason only for his guide, under the beams of nature's light, whether he might not have done better. There are names which stand forth in bold relief on the pages of ethical science, like stars shooting forth their own clear beams from the milky light of the *nebulæ*—such names as Plato and Socrates, Aristotle and Confucius. These drew inferences from the volume of creation far different from those which are usually drawn; and showed that reason was not wholly given in vain. Yet, the greatest height to which reason ever attained in *these* men, was to discover the necessity of Revelation.

343. What *can* reason, what *can* nature testify? The blaze of glory and of majesty which shines around us when the sun is hidden,—the wondrous forms of animate and inanimate things, that sparkle on our path, and wander around us, when his beams, no longer obscured, wake them to life, and gladden them with beauty,—tell us of creation, and creative power and wisdom.

344. The varied gifts and blessings with which our lives are crowned, and with which the world we inhabit is ever overflowing,—the sparkling starry eyes of ten thousand times ten thousand flowers, that bask in the sunbeams, and reflect their light to heaven,—the joyous notes and voices of multitudinous creatures, revelling in the bliss of life,—testify to creative goodness. Joy looks down from heaven, in the light of stars: joy floats upon the ocean, in the undulations of its tranquil bosom: joy breathes through the air, in the perfumes of the flowers: it becomes audible in the voice of nature's harmonies, and tells us—"God is Love." These point us to a Being above and beyond all we behold, *in* whom they exist, and *from* whom they sprang; a Being who deserves, and calls for, our adoration and our praise. Reason becomes entranced. She shouts for joy. She sings—"a present Deity!"

345. And there are other voices, *echoes*, which, giving back the words that have gone from us, and seemed to have died upon the gale, whisper of the possibility of *living again*. The

reanimation of vegetable life, after its autumnal decay and wintry sepulture,—the winging of the maggot and caterpillar, after their state of torpor and apparent death,—the liberation of the elastic gases long imprisoned in the diamond,—and numerous instances of life after death, and re-production from decay,—give dark intimations of another state of being ; while the soul, as if conscious of undying energies, grasps after an existence more durable than anything that eye can see, or ear can hear : and reason, aspiring, hoping, shouts for immortality !

346. But are there not other, and far different, voices ? Hark ! a crash—a thunder-peal—a shriek of agony ! There is a crackling of flame in the dwelling of man. Enkindled by lightning, it devours the cherished things which a life of industry had gained. It seizes the stalwart father, heedless of his bodily torture, and that deeper, keener pang—the essence of a life of pain compressed into a moment—which rends him, when he thinks upon his little ones. It blasts the beauty of the tender mother ; and dries at its fountain the milk which her infant requires. It snatches away the elder children in the hey-day of life and hilarity—half-blown flowers and opening buds, torn from the sunlight that would have nourished them—and leaves, perhaps, one helpless, solitary babe alive, to struggle with destiny, a pensioner on the mercy of a merciless world.

347. And, hark ! again, that low and fearful moan, which comes from a city where pestilence is raging. Pallor and sickness are in every house. Death reigns supreme, crushing every flower that strews his path as he passes to his human victims ! The voice of joy and gladness is hushed. There is no laugh to be heard, except the vacant laugh of the maniac, whose friends are gone before him to the place appointed for all living. The church bells are silent, as though tired of ringing the knell of those who once delighted in their music ; their only echo being the bell of the dead-cart, as it wends its solitary way along the streets.

And, hark ! yet once again, to the groan of the murdered, the shriek of the tortured, the wail of the destitute, the sigh of the famishing, the moan of the oppressed, the cry of the victim of agonizing pain——

Reason, aghast, asks of nature, why and what are these? And the voice of nature is hushed, and her thousand thousand tongues are stilled.

348. The sun that gilds the cold mountains with its beams, and fills the whole world with radiance, shines not upon the darkness of the mind, nor dispels the moral gloom which involves us, as we muse, unaided by the light of Revelation, on sin and sorrow, on misery and death. The pale and changing moon, earth's own lamp, that constantly attends her in her course through space, and the distant stars, out-sentinels of heaven, cannot light us to the unravelling of these mysteries of Providence, nor direct our thoughts to the true Source and Centre of man's hope. The harmonies of nature are spoiled for reason's ears by these discordant notes; and she wanders in dimness and uncertainty, longing for a clearer light. She sees shadowings forth of compensation and restoration in the whole realm of nature. Day succeeds to night. Spring unlocks the gates which winter closed. The vegetable purifies the air which the animal has poisoned, thus restoring the balance which would otherwise have been lost. The deviations from their orbits in planetary motions are compensated by counteracting deviations. Reason asks for a similar retributive harmony in the moral world to that she sees in the physical; but this can only be by an after-state of existence, where recompenses shall be made.

And who shall tell her of the future? Who declare the secrets of a condition yet to be? Those indistinct intimations of life through death, and redemption from the grave, which nature gives,—faint as the rays of a distant star, half hidden by clouds and vapours, feeble as the sounds of voices borne from some far-off shore,—they are not echoes from the world to come: and these are what she longs for.

349. She looks again. She sees mankind engaged in one almost universal upward struggle. Each discontented with what he *is*, is anxiously striving for something above and beyond his present condition, as though conscious of having fallen from a *better state*, which once was his. And there are whisperings of traditions everywhere that such has been the case; and that a day of restitution is to come. Sometimes locked up in a

language known only to the priesthood—sometimes veiled in sibylline oracles—sometimes more clear and tangible in their expression, their testimony is ever the same ; and reason asks, “ Can these all be delusions ? ”

350. She looks again ; and sees in every land propitiatory sacrifices, offerings, purifications, and oblations. Assuming every form, from the meek and earnest supplicatory prayer, to the bloodiest and most inhuman sacrifices, they seem to speak one voice—that man is fallen, and must propitiate the Deity : and she asks of nature for an explanation ; but nature answers not, and cannot answer.

Revelation only can resolve the moral chaos into order. Revelation only can answer her longings, and alleviate her travailing pains. Revelation, therefore, is *a priori* PROBABLE.

351. But, further, Revelation is morally NECESSARY, in order to the consistency and perfection of God’s own operations. *Necessary*, in one sense, it may have seemed to be, in order to remove man’s darkness, and relieve him from the uncertainties in which he is involved. But (with reverence be it spoken) it may also be considered as morally binding upon the Deity, as a consequence of what *Himself* has done. In the survey we have taken of the kingdoms of nature, we have beheld something more than a system of adaptations and compensations, exhibiting and illustrating the wisdom, power, and goodness of the Deity. Wherever we have directed our search into the visible Universe, we have further seen, that nothing is done without a purpose. Means and end are inseparably linked together, as in one inevitable destiny. Eyes are not given to animals which are not designed to spend some portion of their time in light. Intelligence is not imparted to that which has no opportunity for its exercise. Every impulse has its object, every instinct its appropriate answer. And man’s instinct of worship and devotion, his universal tendency to believe in a *known*, a *Revealed* God, appears, without such an answer, to be a creative effort wasted and misapplied. Without such a Revelation, man cannot know to whom, or to what, he is to address the worship to which this instinct impels him. While ever seeking and longing for a *personal* knowledge of the Deity, when he knew Him only through the works of creation, he

“glorified Him not as God, and his foolish heart was darkened.” Lifting up his eyes to heaven, he saw not the Revelation of his Maker in those stupendous manifestations of His power and wisdom, which, rolling onward unceasingly in their destined courses, declare His glory, and show forth His handy-work. Rational he was made, but he prostituted his rationality, by worshipping the very rays of glory which should have served to light him onward in his search after God. And, alas! this was but the first step in his career of abasement. He peopled those orbs of light with imagined spirits, and worshipped them. He peopled earth’s centre with malignant demons, and worshipped them. He worshipped his fellow-creatures and progenitors. He worshipped brutes. He worshipped the productions of the earth. He cast him gods of gold—he hewed him gods of stone—he carved him gods of wood, and worshipped *them*. Taught by reason his dependence upon something beyond himself, he learned not from reason what that something *must be*; but idols like these he attempted to appease, by atonements, and by penance. To these he immolated his children; to these he burnt his holocausts; to these he offered up his hecatombs of victims. These he worshipped with the most disgusting rites, as though seeking to satiate their lascivious and cannibal appetites with debauchery, with prostitution, and with death; often drenching the earth with blood, and putrifying the air with exhalations from the carcasses of the slain. But those *misapplications* of the instinct of worship are no evidence whatever that the instinct had no appropriate end; but only a further evidence of the necessity of Revelation, to indicate the proper object towards which it should flow forth.

352. That the light of nature is insufficient, without a further Revelation, to bring man to an acquaintance with His God, is manifest from the fact that it has *always* proved so; and if he ever possessed such knowledge, he lost it, though nature’s light was ever beaming the same.

353. Nor is the physical Universe without examples of light and glory continually shining, but for man shining on in vain. If we look forth into the broad expanse at night, why is it that all is comparative darkness, not only in adjacent space, but in

the lateral and more distant heavens? The shadow of the earth is thrown over but a very small portion of heaven's pathways, how small, the eclipse of the moon occasionally makes manifest, seeing that her surface is scarcely hidden by that shadow. Sunlight is abroad, travelling on through those wide heavens so dark to us; but we see it not, for want of a substance to reflect its rays back to our eyes, as some of them are reflected back by the planets and satellites that accompany our earth in its course. And, thus, though God's glory is ever rushing on through infinitude, man would only see an occasional star-point of its rays, were it not that they are mirrored in the Book of Revelation, and thus reflected back upon his mental eye-ball—the retina of the soul.

354. Thus that flood of glory ever has been rushing on. From the first moment of his creation, it shone as brilliantly through the outward Universe as now. The same evidences of wisdom, power, and goodness,—the same adaptation of means to end,—the same provisions for sentient enjoyment, shone ever, and still shine, around the most uncultured races of mankind, as now illumine the thronged inhabitants of Christendom. Yet, for want of Revelation, the savage knew not God. He exercised the faculty, the *instinct*, of worship, but he exercised it wrongly. He sought for a Revelation from God. He seeks it still. He ever believed, and still believes, in almost anything that *pretended*, or *pretends*, to be such a Revelation. And still he asks for it. And could he, can he, ask for it in vain? Oh, no!

“If when men died, at once they ceased to be,
Returning to the barren womb of nothing
From whence they sprung,”

such an unanswered voice would be an anomaly in the Universe,—a discordance between physics and morals, to which the whole realm of nature could furnish no analogue, in the unanswered desires of any living thing. Revelation, therefore, may be said to be *morally* NECESSARY.

355. But the evidence is cumulative still. The call grows louder and yet more imperative. Man has other instincts and desires which demand a Revelation. He feels himself a re-

sponsible being, accountable for his actions. Why else has he enacted laws and instituted punishments? Without responsibility, there can be no such thing as moral guilt. Without it, crime is not criminality, vice is not vice, nor virtue virtue. Nor can laws be morally binding upon man, thus irresponsible, which are made only by his fellow-men. Yet more, he *feels* that such responsibility extends *beyond the present life*. Conscience pursues, when his own judgment tells him he has committed a crime. Condemned when innocent, or subjected to punishment in error, he is sustained by fortitude which grasps the future; by instincts which assure him there is One who judgeth righteous judgment; and a state wherein recompenses shall be made. Yet more, he longs for, and he grasps after, immortality. Taught by a voice within, he claims—expects it. If, then, *these* instincts be not vain ones,—if these expectations spring not from creative efforts wasted and misapplied,—if man's soul be immortal, and accountable to God for her actions, then is a Revelation of His will, and of the laws which it is man's duty to obey, to be naturally expected from the Divine wisdom and goodness. If, on the other hand, those varied instincts and expectations are to meet no answer, then is the work of creation incomplete. The first alternative can be the only true one—the latter is impossible. Order in the natural world sprang out of chaos; but this would be chaos in the moral world springing out of order. It would seem like giving nature the lie; and would leave a dark, black spot upon the Universe, which no sunlight could ever efface.

CHAPTER XIV.

THE INCORPOREITY OF THE SOUL DEMONSTRATED, AND ITS IMMORTALITY ASSERTED — A FUTURE STATE OF EXISTENCE DEDUCIBLE FROM THE FACTS OF THE PRESENT ONE; AND, THEREFORE, EVERY GROUND IN FORCE FOR BELIEVING THAT A REVELATION, SUCH AS THAT SUGGESTED IN THE PRECEDING CHAPTER, WOULD BE MADE.

356. AMONG the extraordinary facts of the present age, we may regard the existence of an author who gives full and implicit credence to what are called the higher phenomena of mesmerism, as somnambulism, thought-reading, clairvoyance, &c., yet denies the incorporeity of the soul; yea, attempts to argue against its incorporeity from those very phenomena. I would not impugn the veracity of Mr Atkinson, though I cannot place any great reliance on his judgment. But, if I could give full credit to every statement he has made in his letters to Miss Martineau, I should need no other evidence of any kind to convince me that the soul is incorporeal, that it is something quite distinct from the body, and capable of living in a state of separation from it. How, otherwise, are we to account for the extraordinary "facts" which he brings forward? How, by material or bodily organs, is one person to read the unspoken thoughts of another, as they pass through that other's brain? How are those who are dying to "often necessarily experience a disembodied sense of being?" How is one person, placed *en rapport* with another, to feel that other's pain, and describe his or her internal diseases, and suggest their remedies? How is any one to see distant objects without the use of the eyes, or to see through opaque objects, and read what is written in a closed book? How is a person with her eyes shut to read writing from the top of her head, or any part of her body? How is any one to perceive what is going on in distant places, or to foresee events, and read the

future as the past? * How is any one "in the quiet of the night to recognize the death, at the moment of its occurring, of persons at a distance, whose immediate danger was unknown"? Or, to quote a later illustration, not brought forward by Mr Atkinson, but by Dr Gregory and Dr Haddock, how is an uneducated girl in the North of England, while her body remains at Bolton, to go in search of Sir John Franklin in the polar regions, find him, tell the dress, mode of life, and food of the crews, and tell the Arctic time by his watch or the time-piece in the cabin? I will not deny that "a pretension to know what is or what is not impossible, is, in the present state of science, ludicrous;" † but it is *not* ludicrous, it is only correct and rational, to say that *such things cannot be without the means of being*. The BODY's only organ of seeing is the eye; and it can see nothing but what is impressed upon the retina. The *body's* only organ of hearing is the ear; and no sound can be conveyed to it whose vibrations do not impinge upon the auditory nerve. Nor can the sense of touch, or feeling, be experienced by the BODY, except by contact, or a close approximation thereto. If these senses are impressed by other means, it is something distinct from the body that receives the impression. And how can the retina be impressed by that which is far beyond the reach of its vision? How can the auditory nerve be impinged upon by that which is far away from the sphere of its influence? Or how can the sense of touch be operated upon by that which is not only not in contact, but hundreds of miles distant?

357. I would not rest the doctrine of the mind's incorporeity upon a foundation so unproved as the so-called "facts" of mesmerism, or what Dr Haddock would, perhaps, more properly designate as "somnolent and psychological phenomena." But taking this very modern champion of Materialism and Atheism (Mr Atkinson) on his own ground, and admitting the class of illustrations he brings forward, we should need no *other* proof of the fact for which I am now contending. Dr Gregory, in his "Letters to a Candid Inquirer on Animal

* "Only conceive," says Miss Martineau, "of the time when man may, *at will*, have *certain* knowledge of things distant and future." (!!!)

† "Chambers's Journal," in commenting upon the above case.

Magnetism," tells us, (p. 49,) that "the clairvoyante sees *real*, not illusive objects, by some unknown means, which reach his internal vision without having to pass through the eye-ball, or fall upon the retina." Again, (p. 146,) "The clairvoyante appears, as it were, mentally to go to the place named: [*i. e.* where he may be sent to.] He often finds himself in *no place*, but floating, as it were, on air or in space, and in a very short time exclaims, 'Now I am there.' The place named is the first, as a general rule, that presents itself to him; but whether it be so, or whether he first see some other place, a certain internal feeling tells him when he is right." There is much in this that resembles dreaming; and he who has tried the experiment of talking to others in their sleep, has, doubtless, if he has met with "sensitive" subjects, often found that he could, by suggestion, guide their dreams, though the "slumberer," like the "clairvoyante," has been generally unconscious, when waking, of all that has passed. But granting that the clairvoyante does behold, not visions, but realities—as the testimony of many credible (if unprejudiced) witnesses would lead us to conclude—what is it that sees them? Is it a material, a corporeal principle, which, with the velocity of light, darts forth, as neither light nor electricity can do, through opaque, obstructive, and "non-conducting" bodies; and pursues, with unerring aim, the object of its search? Is it a material, or a corporeal principle, which, with only a scrap of his writing for its guide, tracks a man to America, to California, or to the Frozen Seas; and finding him there, (if we are to believe the testimony given,) in the very occupation in which he is at that moment engaged, converses with him, and reads his thoughts?

358. Dr Gregory surmises that the "odyle" of Baron Reichenbach may form some connecting link between the clairvoyante and the knowledge he acquires. But even were the existence of odyle demonstrable, and as apparent to all men as it is to the "sensitives," it would in no way account for the phenomena described. Admitting the testimony of Baron Reichenbach's sensitives, the most rational view I can gather of his odyle is, that it is a feeble glimmering of light, emitted by magnets, crystals, and all kinds of matter in a state of chemical change—most probably, in every case, arising from

electrical excitement. How this can light the clairvoyante in his mental search, is, I acknowledge, beyond my conception. If this odyle is a magnetic fluid, communicated by the magnetizer to the somnolent, in communicating which (as contended) he imparts somewhat of his own mental identity to his patient, how is it that his *knowledge* is not at the same time communicated? Mr Lewis, for example, persuaded a man, whom he publicly mesmerised at Aberdeen, in 1851, that he was standing on a parapet over the Falls of Niagara; and when he felt dizzy, and feared he should fall, gave him the back of a chair to lay hold upon, as a railing which would support him. I can easily conceive that, in induced or suggested dreaming, when the avenues of the senses are nearly closed, a man might be persuaded to believe such a fallacy. But if mental phenomena are only material, if odyle is the communicating principle, and these thoughts were induced by the communication of odyle from Mr Lewis's body to that of his patient, then the man ought to have known, as well as Mr Lewis, that he was trying to deceive him. Whether clairvoyance be, or be not, mere dreaming,—and dreams have sometimes proved, in nearly every one's experience, the premonitions of realities,—it will, if it be not *imposture*, equally testify to the incorporeity of mind—of mind that can see at a distance, or see beforehand, facts of which the bodily senses have never yet become cognizant—of mind that can go forth while the body is inert, and hold communion with distant objects, and with distant beings—of mind that, rejoicing in its liberty, quits for a time the limits of bodily organization, and feels, and sees, and thinks, and acts, independently of the corporeal senses.*

359. But, leaving now all visionary, and, as yet, unproved, things, for stern and tried realities, I would first premise that there is a difference in the kinds of evidence which can be applied to different classes of phenomena. He who demands mathematical demonstration or deductions from chemical analysis to be applied to that which is wholly psychological, might as well ask for the weight of an odour, or the appear-

* Dr Haddock's "projection," if I may so call it, of the psyche, or animal soul, which, when the body is asleep or dead, becomes the proper and only habitation of the pneuma, or spirit, seems to me the only theory of "Mesmerism" consistent with itself.

ance or colour of a sound. Yet the evidence, if different in kind, is not inferior in degree. For, close as the relation *is* between body and spirit, there is evidence of their distinctness almost as strong as can be brought forward to attest the truth of any fact connected with the physical sciences. Some of these have already passed under review—when the principle of life, and reason, and instinct, were the themes under consideration; but there are others remaining, sufficient, even without these, to prove the mind's incorporeity, and its consequent capability of another state of existence.

360. Mr Atkinson contends, that "the same reasoning which induces the conclusion that the brain is the *instrument* of the mind, must force a consistent man to conclude that the steam-engine is not the machine producing, but the instrument of that which is produced by its action." I grant the conclusion; and accept of his illustration as quite to the purpose. The production sought is *motion*. Let him try, then, what a steam-engine can do without fire and water; and he will have a fair illustration of what the brain can do without the mind to inhabit it. Both are perfectly adapted to the purposes for which they were intended; but neither one is, of and by itself, capable of action.

361. The mind, however, is not so entirely dependent on the brain as the steam is on the perfection of the engine for the performance of its operations. Those distinguished continental Anatomists, Morgagni and Haller, ascertained that, in one instance or another, *every part* of the brain has been destroyed or disorganized;* and yet the individuals had none of them been deprived of mind, or affected in what have been thought to be the corresponding intellectual powers. Abercrombie tells us of a lady, in whom one-half of the brain was reduced to one mass of disease, who retained, notwithstanding, all her faculties to the last, except that there was an imperfection of vision. A man, mentioned by Dr Farrier, who died of an affection of the brain, lost no portion of his faculties till his death, which was sudden; but on an examination of his head the whole right hemisphere was destroyed by suppuration. A young man, under the care of Dr Kingdon of Stratton (Corn-

* See *Quarterly Review*, No. 43.

wall), had his head kicked by a horse. The whole of the brain on that side was taken out, and a silver false skull put on. Yet he recovered, and his intellect was in no respect disordered by the accident. In a case quoted by Diemerbroeck, half-a-pound of matter was found in the brain; and in one by Dr Heberden, half a pound of water; yet in each case the intellect was sound. Dr Cowan relates two cases of cancer of the brain, of a very extensive character, in which its substance was almost entirely destroyed, and yet there was no appreciable disturbance of the intellectual faculties. A man mentioned by O'Halloran, suffered so severe an injury of the head that a large portion of the bone was removed on the right side, and there was discharged, at each dressing, through the opening, an immense quantity of matter, mixed with large masses of the substance of the brain. This went on for seventeen days; and it appears that nearly half his brain was thrown out, mixed with the matter. Yet the man's mind was tranquil throughout, and he retained his intellectual faculties to the very moment of dissolution. A man under the care of Mr Marshall died with a pound of water in his brain, having been long in a state of idiocy, but who, a short time before his death, became perfectly rational.* In the attack on the Redan (Sebastopol), on June 18, 1855, a young man named Palmer, private in the 7th Fusiliers, was shot through the left parietal bone by a minié bullet. "When carried into the field-hospital (says the correspondent of the *Daily News*), an hour or so after receiving the wound, the brain was actually protruding through an orifice in the skull large enough to admit of the entrance of the doctor's finger into the interior of the head in search of the ball." He thrust his finger to its full length within the brain to discover the bullet, and the portion of the skull which it had carried inward. Neither could be discovered. Yet the wound was healing, up to the date of this letter (eleven days after), and the man continued lively and intelligent.

In these cases, the mind evidently did not depend so much upon the brain for its action as is generally supposed; and seemed to evince a capability of existing independently of that bodily organ.

* See Abercrombie "On the Intellectual Powers."

362. That the body is fitted and designed for the habitation of the mind, is a truth sufficiently apparent. Every organ of sense is supplied with a muscular apparatus, capable of being moved in any direction in which the mind may have to search for its object; and in every muscle two nerves are placed—one to direct and contract the muscles, the other to enable the mind to obtain the sensation which accompanies their action. Thus provision is made for the operations of a being capable of cognition, both from matter and from thought—for the various uses of a soul which is conscious of *sensation*, and can exercise *volition*. Will and perception are offices in which the nerves and brain are constantly engaged. The action and reaction between the mind and body are incessant,—the ideas being constantly modified by the state of the nerves, or the nerves agitated by ideas. Yet, will and perception are not actions of the brain and nerve, but of the soul that uses them. “That which feels and acts must be distinct from the body, unless the body itself feels and acts; but in so far as it possesses a distinct organization of nerves for distinct purposes,—as feeling, and motion, and sympathy, and as all the body does not act together in feeling and willing, it is manifest that something besides the body must be engaged in feeling and willing: for that which wills is the same as that which feels; but the organization subservient to these ends is different, therefore the organization neither feels nor wills:”* for the feeling and willing *something* must be *one* which operates upon the motor nerves and muscles, and to which the impressions of the sensor nerves are conveyed.

363. Nor do the mind and body, closely as they are united, always sympathize so much, or display such unity of action, as to give any reason for the conclusion that they are not distinct. The mind is sometimes an agonizing sufferer, while the body is in perfect health, and only by degrees, by its continued action on the nervous system, brings the bodily organs into a sympathetic state. And though the body cannot long resist the influence of mental disease, the mind can effectually resist the depressing influence of bodily disease or bodily pain, even

* Moore’s “Uses of the Body in Relation to the Mind,” p. 36

to the period of their separation. Paralysis has unnerved and unstrung the whole system, and yet the mind has remained uninjured. Such was the case with Talleyrand, who, with a body like a living tomb, retained his mental faculties still unimpaired. Nor need I more than allude to the rejoicing moments of the dying Christian, or the triumphs of the martyr at the stake, to show how the mind can continue in calm serenity while the body is enduring the most excruciating torments, or losing at once its vitality and power.

364. But there are physiological, as well as psychological, reasons for concluding that the brain is not the mind, but only an instrument designed and fitted for its use. If the mind were a material thing, and confined to the brain, then, since no portion of brain is imparted in generation, the new organism could possess no mind; and if it be something superadded to the body there is no reason why it should not exist out of the body. Perceiving, thinking, willing, are not properties of the brain, which is as much a brain when uninfluenced by thought, as when excited, and possesses all its material properties as well when dead as when living. Brain—to revert to Mr Atkinson's mistaken idea—is but the steam-engine, which, without coals and water, is incapable of any operation. But the power of fire and water, in connection with the engine, is only calculated in a very slight degree to illustrate the operation of the mind upon the brain. The engine moves quicker or slower according to the intensity of the propulsive force, but can only move in a particular direction; whereas, the organization is guided and controlled by the mind as a sovereign, and does its bidding. A change of mind, without any change of organization, changes the whole man. Under the preaching of the Gospel the depraved becomes moral; the morose man is softened, and rejoices continually under the influence of Divine love; the thief learns to be honest; the savage or the cannibal to exercise all benevolent and Christian virtues. And what, while the brain remains unaltered, or only changed in so slight a degree as to be imperceptible, could produce so entire a change in the conduct, except the independent influence of mind?

365. Again: the power of memory, and the unity and com-

plete individuality of every human creature, is a sufficient evidence of the incorporeity of the mind. We speak of, and are conscious of, our own identity, as though the body never changed; for no individual's consciousness ever becomes another's. From the dawn of that consciousness until its close in this world, each individual feels its *ipsiety*, is satisfied that he is the same person still, notwithstanding all the changes of his outward frame; and would be equally satisfied thereof, even if he could *perceive* the material changes constantly going forward; and this, simply, because it is the mind, and not the body, which constitutes his identity. The notions of the old Materialists—that all those phenomena which are usually termed mental ones, are but impressions made upon corporeal organs—would be less inconsistent, if all those phenomena might be traced to sensation alone, and consciousness, that other principle of mind, be shown to be a phantasy. This it never will be; since sensation makes no impression till consciousness takes hold of it; as the figures impressed upon the retina are never seen till the mind's attention is called to them. But, granting it could be so, though *less* inconsistent in this case, such notions would be *as clearly* inconsistent still; for if all the cognitions of mind were but impressions made upon material particles, what must become of those cognitions when all the particles impressed with them have left the body and entered into some new state of being? Every atom of the body is successively removed in the process of vital action;* therefore, since memory continues, the seat of memory is not in the body, but in some unchanging incorporeal principle, which preserves the identity of the individual under every material change.

* I grant it possible that there may be, as suggested by Drew in his "Resurrection of the Human Body," some indestructible germ which preserves the identity of the body under all changes; but certainly this is not the case with the whole human brain. A theory has long been prevalent that, *at least once in seven years* the whole human body is changed. That theory is, in most respects, *more* than established by modern investigations. The reader of Dr Johnston's "Chemistry of Common Life," will find sufficient evidence placed before him, that all the *softer* tissues are changed in far less than *one* year, though the bones and harder tissues may require a much longer time for their complete renewal.

366. Mr Atkinson, indeed, teaches us that the continuance of our identity is no more a wonder than the continued form of anything else, or the continued re-production of the same type—an oak from an oak, a man from a man, &c. And, perhaps, it may not be more a wonder, though it cannot be accounted for on the same principles. He says, (p. 184,) “Each part of the frame gives its condition to the new comer; and thus, not only the brain, but the lungs, stomach, liver, hair, bones, &c., continue the individuality and peculiarities of the persons, even to the latent qualities, which may pass through one generation, and come out into relief in a third or fourth. In the same way, the memory of the past, and personality, are continued, and incessantly transferred from matter to matter, and from body to body, and we retain the sense of personality, and the memory or sense of the sequence of our lives.” Here, however, in mixing mental with material phenomena, Mr Atkinson proves either nothing or too much. That material peculiarities are imparted and continued is undoubtedly true. As true it is, that they will sometimes remain latent in one generation, and come out into relief in a succeeding one. And, if memory and personality were properties of corporeal particles, we might as readily expect to see these come out into relief in future generations, as other corporeal qualities. For if a child inherits his grandfather’s or great-grandfather’s shape of head, his scrofulous habit, or his disease of the lungs, why, if they are only corporeal principles, should he not inherit also a portion of his personal identity, and some of the “sense of the sequence of his life?”

367. Intelligence, derived through the medium of the senses, is necessary to the development of mental capacity in the mind’s state of union with the body. But mind cannot be the result of sensation, and thus be a congeries of impressions made upon corporeal particles; since it must exist prior to the sensations, in order to receive them, and, on receiving, attend to and compare—such attention and comparison being quite as necessary as sensational experience to the development of intellectual power. If the central brain, in which the impressions of sense combine, be diseased, the mind’s faculties of attention and comparison will be interfered with, and intellectual advancement cannot proceed; because sensation gives false im-

pressions, and the individual is insane. But let the cause of these false impressions be removed, by the removal of the disorder, and the mind shows itself righted, because it never was unsound, but only *appeared* so by the diseased action of the organs through which it received its impressions. Dr Gregory relates the case of a lady, kept in confinement as insane, who so far recovered, that she was sent home, and regarded as cured. She then retained complete consciousness and memory of all that had passed during her confinement, and was engaged to a gentleman with whom she had become acquainted since her illness. Afterwards she had a severe illness of a febrile character, and, on recovering from this, lost all trace of recollection of her insane state, of her confinement, and of the person to whom she was engaged, who was received by her, to his no small surprise, as an utter stranger. She was now really cured, and just as she had been before her insanity. Dr Prichard mentions a lady who was liable to sudden attacks of delirium. They often commenced while she was in animated conversation; and on such occasions it happened that, on her recovery from the state of delirium, she instantly recurred to the conversation she was engaged in at the time of the attack. To such a degree was this carried on that she could even complete an unfinished sentence. How are these cases consistent with the theory of memory being only the result of impressions made upon corporeal atoms? The impressions would be the same *during* the disease as before and after its attack—the same when the equilibrium of the mind was disturbed as while its rule over the body was clear and perfect. And why, if all mental phenomena are merely images impressed on material atoms, were not the images of those “absent” periods as regularly re-produced as others?

368. The phenomena of sleep and dreaming are no less remarkable as evidencing the soul's incorporeity. “Sleep,” as Dr Moore remarks,* results from a constitutional bodily necessity; the attention of the mind must be withdrawn from the body, or the machinery of nerves and blood-vessels cannot be properly repaired and fitted for further action, because wakeful life is attended by rapid waste of physical power, in

* “Power of the Soul over the Body,” p. 115

consequence of the direct operation of the mind upon the physical organs. The body requires rest, *the mind does not*; and the body needs it only because the structure of its parts will not bear the incessant operation of the mind upon it. Deep thinking will, indeed, wear a man out as soon, or, perhaps, sooner, than bodily exertion, as many a hard student can testify; but this is because volition is exercised, which is not the case in dreams.

369. Dr Haddock has shown* that the cerebrum is, more or less, in a state of collapse during sleep, and thus the mind's connection with the corporeal frame more or less cut off, according to the intensity of the collapse, or soundness of the sleep. It is most probable that the mind *never* rests, for though we are not always conscious of its workings, but often wake from a sleep so sound that it seems to have been dreamless, there is no certainty that we have not dreamed. It is, perhaps, only the intensity of the collapse which has shut off the operations of mind from the bodily organs; and thus, on the restoration of consciousness, we are not cognizant of any of its workings during sleep. Even during our wakeful hours how many thoughts are continually passing through our minds, which, like such unremembered dreams, leave no abiding impression; while others, more consecutive, can be called to recollection, like the dreams we remember when awaking. During sleep the mind is active, perhaps incessantly so; and while the body is dormant, wanders at its will in any region, known or unknown. Dreams have been considered as resulting from the reflex action of the brain—the images conveyed through the senses being thus re-produced only because the nerves retain the images of those impressions. This solution is ingenious, but has little claim to be considered correct, even if it would account for all the phenomena in question. Far more rational is it to conclude that it is the individual soul, possessing memory, will, and understanding, which thus operates upon the brain in our remembered dreams, than to conceive of material substances possessing such innumerable pictures of the past, mixed together but not confounded, each dependent upon a particular state of the nervous fibrils, yet every image

* "Somnolism and Psychicism"

of the countless number capable of being spontaneously produced and recognized. But such a solution of the phenomena of dreaming *cannot* be the true one, because the mind in sleep often manifests the possession of powers, or "images," which it has not obtained from any corporeal organ. Mr Atkinson relates the case of a lady who was born blind, yet constantly saw in her dreams, and so described the phenomena of sight as to render it evident she *did* thus see, (the mind not sharing in the body's imperfection,) although she *never* knew what it was to see with her bodily eyes. Again: there is, perhaps, no one who has arrived at years of maturity who is not conscious of having visited places again and again in his dreams, and recognized them as well-remembered scenes, though he had never seen them when awake. Since these scenes, then, have never been impressed upon the retina, and most of them in all probability have no real existence, it can be no corporeal organ that retains the impression; because upon no corporeal organ has that impression been made. They are the mind's pictures *alone*; and clearly prove the distinctness of mind from the bodily organs which it uses. Dreams, indeed, will sometimes amount to a connection *with*, or prevision *of*, realities, when the mind uses the body as its more passive instrument, for the performance of its behests; but this must be when the collapse of the cerebrum is less complete. Dr Abercrombie relates, that an eminent lawyer who had been consulted respecting a case of great difficulty and importance, after several days' intense study of the subject, got up in his sleep and wrote a long paper. Retaining some indistinct impression in the morning of his sleeping cogitations, he told his wife he had had a most interesting dream, and would give anything to recover the train of thought which had then passed through his mind. She directed him to his writing-desk, where he found his opinion clearly and legibly written.* Instances of a similar

* An incident of a very opposite character is worth recording. A valued friend of mine, the Rector of St Thomas's, Birmingham, who, in more senses than one, may be ranked among the *working* Clergy, having during the Russian war rather more than his usual quantity of exhausting employment, sat down, late one night, to advise the Eastern Agents in London of a quantity of goods he had that day despatched for the Hospitals at Scutari. For this purpose,

character might be multiplied. Logicians have discovered in their sleep a key to difficulties which perplexed them by day. Poets owe to dreams some of their highest imaginings; and musicians some of their finest compositions. And what was it that produced them? Corporeal organs, or an unresting mind?

370. But the power of mind over the body is sometimes shown almost as much in wakeful as in sleeping hours. The curative effects of hope and imagination have been manifested ever since disease was known. They form the staple of the Eastern charmer, and the Western charlatan,—of the medicine-man among the North American Indians, and the universal-medicine dealer of the British Isles. Every experienced medical man knows the importance of gaining from his patients a confidence in his remedies. I have known a severe case of frequently-recurring epileptic fits cured, by the physician assuring the patient that, in a certain time after taking some medicine which he gave him, he would never have another fit. The medicine, he told me, could have little or no effect upon them,—but the assurance had. An aged relative of mine, who had been confined to her bed for months, and whose decease was daily expected, was so aroused by the state of her husband, who lay expiring in another room, that she got up to see him ere he departed. From that time, such was the rousing of her nervous system, all appearance of disease, prostration, and decay, left her entirely; and she continued well for years. An extraordinary instance of the power of the mind over the body, which occurred during his last Arctic voyage, is related by Dr Kane: “Our captain (he says) was dying [of scurvy], I say *dying*. There was trouble aboard; there might be mutiny. So soon as the breath was out of his body we

with his eyes open, but his mind evidently asleep, he penned the following epistle:

“Gentlemen—I forward this Evening, by the Great Western Railway, a package for Scutari. Please distribute it in London. Tell me what you think of the open-air system. Yours, &c., G. S. BULL.”

This epistle he folded up, and addressed “To the Commander-in-Chief;” and had not one of his Scripture readers, who watched the process, been a little less exhausted than he, it might have been committed to the post-office.

might be at each other's throats. I felt that he owed even the repose of dying to the service. I went down to his bunk, and shouted in his ear, 'Mutiny, Captain, mutiny!' He shook off the cadaveric stupor. 'Set me up,' he said, 'and order these fellows before me.' He heard the complaint, ordered punishment, and from that hour convalesced. Keep that man awake with danger, and he wouldn't die of anything until his duty was done."* Bouchet informs us that the physicians of Montpellier had two criminals delivered to them every year for dissection. On one occasion they tried what effect would follow from the mere expectation of death in a healthy person. They told the subject of their experiment, that they would take the easiest method of destroying life, by opening his veins in warm water. They therefore blindfolded him, set his feet in water, pinched instead of lancing them, and then continued to speak to each other, as though they saw the life and blood ebbing together. The man sat still. They uncovered his face. He was dead!

371. A person with whom I was most intimate, and who was a firm believer in Astrology, had calculated that he was to die on a certain day. The effect of that mental impression was such, that, without any attack of organic disease, he was brought nigh to death. His frame being too strong to be worn out by the mind before the expected hour, when the dreaded "planetary aspect" was past he declared he "would not die till he was forced to it!" and at once, without help from medicine, began rapidly to recover.

372. Perhaps, however, the most demonstrative exhibition of the power of the mind over the body, is to be met with in Dr Darling's† experiments, in what he calls "Electro-biology." or "Electro-psychology." At his suggestive command, the bodies of those over whom he can exercise his influence, are deprived of their ordinary powers. The eyelids cannot open—the tongue cannot utter a sound—the limbs become rigid, or move in any way in obedience to his commands; and this without any of the outward accompaniments of mesmeric passes or mesmeric signs. Pains are removed, and sensations

* Elder's "Life of Dr Kane."

† I say Dr Darling's, because his were among the earliest and the first I witnessed, though many others have practised in the same line.

of heat and cold are communicated at his bidding; and things which are held in the hand, and of nearly the same temperature with the hand, are, against the testimony at once of sight and intellect, felt to be burning hot, or cold as lumps of ice. It is but begging the question to refer all this to collusion and imposture. Respectable men could not be found in every town he visits to carry on such an imposture. I attended one of his lectures, with three other persons, for the purpose of testing his powers. He found he could operate only upon one of us; but on that one he did operate most successfully, controlling the motor nerves and muscles according to his will. Marvelling at what I saw, I myself tried some of the experiments upon the same individual a few days after, and found his muscles also under *my* control. He tried upon himself, and found his eyelids obedient also to *his own* command,* so fast sealed, that he could not open them, until, in the language of Dr Darling, he said, "Now you may." Anxious to understand such strange phenomena, he asked for my opinion upon the cause. I told him that I fancied it was only a result of faith. He believed that he could not do what he was thus so positively assured he could not; and the mind, influencing the motor nerves and muscles, robbed them of their power. I tried him again, with this impression on his mind,—but the spell was broken, and my power and his own were gone.

373. And now let us see what results we can obtain from this wonderful influence of suggestion. What says it as to the nature of mind? If all mental phenomena are but impressions made upon corporeal atoms, thence carried to the brain, how are we to account for such phenomena as these? The impression of heat or cold, gathered from an object in the hand which is neither hot nor cold, is evidently not sent *to* the brain, but *from* it. It is not sensational, but suggestive. The nerves of the hand have not received such an impression, because it is *unreal*. The mind, in accordance with the suggestion of another, believed it must be so, and a corresponding feeling was excited. Such phenomena, then, *are not the result of impressions made upon material particles*, but of the action of the mind alone; and show at once its incorporeal nature and its power.

* This gentleman is Mr F. S. Aston, now of Moland Street, Birmingham. I give his name and address to corroborate these singular facts.

374. There is one more power to which I must refer before I close. It is the power of the will. If mental phenomena are merely the result of impressions on material atoms, what gives the mind such power over the body as the action of the will evinces?—power which mere material organization could not of itself by any possibility attain. What endows the madman with a muscular force, which, when his will has liberty to exercise his muscles, makes cords but as webs of gossamer? The mind, in its action upon the body, imparts a power which confers strength on the material it operates upon—a power to which everything in the range of mechanics is as nothing; for the fibres which during life may be employed to give a blow that will break the hardest rock, or to lift more than a hundred pounds, may, instantly after death, be torn by the weight of a few ounces.

375. Nor is it thus only that the power of the will is exercised. It aids in the formation of character, and overcomes material obstacles which are otherwise insuperable. Instead of the organization forming the mind, the mind, in no small degree, forms the organization; for the development of the brain is, in a great measure, the result of the action of the will, and the manner in which it is exercised and controlled. Thus,

“Just as the twig is bent the tree’s inclined;”

and every propensity of our nature is strengthened or weakened by the mind’s exercise over the body. The will, too, operates, in adult life, in a manner which would be utterly impossible, were mind, as Atkinson contends, “but a transient condition” of matter, and “memory but acquired forms.” Men in the agonies of hydrophobia, in which the sight or thought of anything bright excites the fiercest convulsions, have, in confident obedience to what was believed to be a Saviour’s will, been known to take the silver chalice in their hands, and drink in peace the memorial of His dying love. The tender, the modest, the delicate woman, has submitted at once to rending torture and indelicate exposure, rather than deny *Him* who had made her willing, in the day of His power to suffer anything for His sake. Blood-vessels and nerves, though they may aid in its development, are not the *sources* of heroism. The mind,

the *will*, is the predominating power. Strong in the faith of right, or in determined resolution to abide the consequences, the feeble, the mangled, the emaciated, will prefer *again* the rack to recantation, or embrace with pleasure the devouring fire. And *what* is that which triumphs in the midst of anguish, —which gathers strength from weakness, and hope from what would seem to be despair? *What* power is that, which, rising superior to all corporeal feeling, sings and shouts triumphantly amidst agonizing pain? Besides such force in blood-corpuscles? in cellular or areolar tissue? or in phosphate of lime? Or is it not rather the possession of an incorporeal substance, which guides them in their motions by a power which is not their own?

376. If we turn from physics to metaphysics, the testimony of reason will fully corroborate the testimony of nature, as to the mind's incorporeity; and give us a clear, responsive echo to the voice of fact.

It was truly remarked by Cudworth,* that "no Atheist who derives all [things] from senseless atoms, or matter, is able to assign any cause at all of himself, or give any true account of the original of his own soul or mind; it being utterly inconceivable and impossible that soul and mind, sense, reason, and understanding, should ever arise from irrational and senseless matter, however modified; or result from atoms devoid of all manner of qualities; that is, from mere magnitude, figure, site, and motion of parts." "Had there been once *nothing but* senseless matter, fortuitously moved, there could never have emerged into being any soul or mind, sense or understanding; because no effect can ever possibly transcend the perfection of its cause."

377. Collocation of atoms, or organization, has been indeed brought forward as the sole and simple cause of all these phenomena; but organization can only produce a body fitted for the habitation of mind, or the exercise and operations of mental power. The brain is not thought; but only the seat of thought. The nerves of sense are only the seat or conduits of mental impressions, and not themselves the exercisers of mental power. The most minute examination of those nerves, in all their course, and even where they are expanded in the organs of the senses, will show them to be the same in structure

* "Intellectual System of the Universe." Chap. V.

and the same in substance, however varying in their functions. And, as is beautifully and clearly shown by Sir Charles Bell,* the disturbance of the extremity of the nerve, that gives rise to the sensation, whether it be a vibration upon it, or an image painted on its surface, cannot be transmitted to the brain in accordance with any *physical* laws with which we are acquainted. The impression on the nerve can have no resemblance to the idea suggested in the mind. There is no more likeness between them than there is between a sound and the conception (often a mistaken one) which is raised by it, or the light received into the retina and the idea it awakens. All we can say is, that the agitation of the nerves of the outward senses are the signals which the Author of nature has made the means by which we hold correspondence with the realities around us.

378. But it is not only true that mental and material phenomena are so utterly dissimilar that one cannot possibly arise from the other. It is equally clear, that reason can have no positive independent existence; and that, therefore, there must be a mental subsistence in which it inheres. If it had an *independent* existence, it would have no necessary connection with any positive being. To suppose it to exist, however, independent of any reasonable substance to support its existence, is to admit the existence of reason, without admitting the existence of anything rational, which is an evident absurdity. If, then, reason, as must be admitted, can have no independent existence, it must inhere in, or rely upon, something capable of producing or supporting it. This, we have already seen, cannot be matter, because matter is irrational and senseless. It follows, then, that there must be some mental substratum on which reason can depend.

379. Thus we find, in whatever light we view it, not merely indications, but evidences—*proofs* of the mind's incorporeity; proofs that it is something separate and distinct from mere matter, and, therefore, *capable* of a separate state of existence. Its immortality is not, I acknowledge, a *necessary* deduction from the fact of its incorporeity, because we know little of the nature of incorporeal substance, except from its *manifestations*;

* Bell "On the Hand," 8vo edit., pp. 206, 207.

and our limited capacities, while united to these corporeal frames, are, perhaps, incapable of receiving a *manifestation* of immortality. We have, however, convincing evidences, if we cannot boast of demonstration, of the soul's immortality. Of these, its unity and simplicity are not the least. The mind is not, like the body, composed of particles and atoms, and, therefore, is not, like the body, capable of dissolution. A man may lose a portion of his body, but neither the mind nor the animating principle are divided by the amputation of his limbs. Matter decomposes and re-combines; but there is no such decomposition and re-combination of mind; because matter is composed of particles and atoms, but mind is a simple incorporeal unity. That, therefore, which destroys the body (decomposition or dissolution) cannot affect a simple unity, viewed in connection with which the very terms are words without meaning.

380. Again, we have no reason to infer, from anything we can discover in creation, the utter annihilation of anything. Death is but the prelude to new life, and decay to re-production. Destruction is but temporary dissipation—a preparation for re-construction. Nothing perishes, in the strictest sense of the term; for *dissolution* is but the *resolution* of matter into its elements, as the materials for building up some new form of being. In the fullest sense of the term, matter itself appears to be immortal, or indestructible. Why, then, should we conceive that mind is not? Why suppose that annihilation should seize upon that which, by reason of its essential unity and incorporeity, seems far more capable of immortality? And mind must be either immortal or become annihilated; because, though one corporeal frame can, and will, by dissolution, become the material of which another is built up, such cannot be the case with mind, since one person's consciousness can never become another's; nor can there be any transmigration of "the sense of personality," and the "memory or sense of the sequence of our lives." A writer in the *Reasoner*, indeed, contended that, if the soul must, on this account, be immortal, it is the only thing we know of that retains immortally its own individuality. But here the Sceptic, as usual, misses his way, by comparing things between which there is

no analogy. The soul, as a simple unity, must not, in this respect, be compared with any compounded substance, but with simple unities. Take, then, *any* ultimate atom of matter, and it, through all its combinations, retains in perpetuity its own individuality, *as* an ultimate atom. Thus, an atom of carbon may become, in turns, a portion of vegetable, animal, earth, air, fire, water, coal, or diamond; but in all these combinations, whether it exist in a solid, liquid, or gaseous form, it is an atom of carbon still.

380*a*. Again: the immortality of the soul may be deduced from those instinctive promptings which are implanted within it—its own consciousness of undying energies, and expectations of a future life. It is, as it were, an instinct of our being, and, as such, testifies that He who planted it would not deceive us. The insect blindly deposits its egg where the offspring it can never see finds food to nurture it. The bee constructs its cells, the bird its nest, on principles that never fail. Through the whole realms of nature we discover no miscalculated or unanswered instinct. And as surely as we find these instinctive impressions of all *minor* consciousness unerring, so surely shall we find unerring man's instinctive expectation of a future life—his hopes, his aims, his aspirations after immortality.

381. Once more: we find in the *moral* powers of man sufficient evidences of an after-state of existence. Each inferior creature answers in the present life all the ends of its being; but it is not thus with man. He possesses not only rational faculties, which when properly used will teach him the difference between right and wrong, but a conscience, which approves or condemns, which supports under difficulties, or “makes cowards of us all,”—a conscience which is as a law unto himself, his own thoughts “excusing or accusing one another.” These testify that he is here in a state of trial or probation; and that testimony agrees with his own consciousness, and the governing and almost universal belief, that there is another state of existence, where recompenses shall be made.

382. The soul, then, being shown to be Immortal, and a future state of existence to be a natural, yea, a necessary, deduction, from the circumstances of the present life,—while

unaided reason, either from its natural darkness, or some moral degradation, is incapable of discovering the truth, or guiding man aright, in a case where error may be fatal,—every ground we can conceive of is in force for believing a Revelation would be given—that a Creator, whose whole works give evidence of His wisdom, power, and goodness, would not permit His creatures to wander for ever among rocks and precipices, involved in a moral night, through which no star sent forth its pitying, cheering rays.

CHAPTER XV.

THE CHRISTIAN REVELATION ; ITS CONSISTENCY WITH WHAT NATURE AND REASON TEACH CONCERNING THE DEITY—GOD'S ETERNITY, IMMENSITY, AND IMMUTABILITY—THE FINITUDE OF THE UNIVERSE—THE COMMENCEMENT OF DURATION, &C.—AND THE DIVINE ATTRIBUTES OF INFINITE POWER, WISDOM, AND GOODNESS—THE OTHER CARDINAL DOCTRINES OF REVELATION NOT AT ALL DISCORDANT WITH REASON AND NATURE.

383. AMID the subtleties of Grecian philosophy, or the mysteries of Chaldaic, Indian, and Egyptian worship, we may find indications of something like a knowledge of the Deity. They are dark, indeed, for the most part, and involved so deeply in a forced obscurity as sometimes to be doubtful in their import ; and, usually, but inadequately to repay the searcher's labour. Yet these are the best indications the ancient *civilized* world will afford us, in proof that anything like a consistent view of God was held, even by the wisest among them. There was, however, a pastoral race, far behind other portions of the world in art and science, in manufactures and commerce, in glory and magnificence—a nation which produced no great philosophers, logicians, or rhetoricians—whose very laws, regarded merely in a human point of view, presented an antagonism to *progress*—but whose ideas of the Deity were at once consistent and sublime. A glance at such a state of things—

leaving all other concomitant facts out of view—is sufficient to convince any reasonable person that this race either must have been wiser than the rest of mankind, or have possessed some other means of obtaining the knowledge in question. The examination of their history will show they cannot lay claim to this superior wisdom as merely resulting from intellectual power. That history, moreover, through its entire course, gives consistent testimony to the asserted fact, that they received such knowledge of the Deity from another source—a Revelation from on high.

384. Having now successively found Revelation to be *possible, probable, and morally necessary*, it next becomes our duty, as rational creatures, to examine this professed Revelation of a Divine Being, in order that we may see whether its declarations are consistent with what nature and reason, in the clearest light in which their evidence can be viewed, testify concerning the Deity; and whether it will further answer the end for which we found a Revelation necessary, clearing away the dim twilight in which nature and reason left us involved, unravelling intricacies they could not unravel, and furnishing a clue whereby to thread our way through every labyrinthian maze. With such an object in view, we touch not the collateral evidences* of the truth of that professedly inspired volume, though such matters may incidentally come under our notice hereafter. We merely now examine its teachings, to see whether they accord with what, in our investigations of nature, we appear to have made out as *necessary truths*. In that examination, too, we must necessarily be somewhat brief,

* These evidences are summed up in brief and powerful language by Dr Hamilton of Mobile: "The Bible is made up of documents of very great antiquity; it claims to be inspired; it betrays nothing at all inconsistent with this high claim; for there is in it nothing puerile, weak, or unbecoming; it is in every point worthy of the origin it claims; it is attested by many astonishing miracles; it is supported by various and wonderful prophecies already fulfilled, and by others which are being fulfilled before our very eyes; its Divine origin is witnessed also by its admirable influence in promoting civilization, humanity, and refinement among men; and even time itself, though it seem to impair the lustre of its evidence in some points, does in fact yield a constantly increasing confirmation of its truth, and elucidation of its worth, as the very voice of God."—*The Pentateuch and its Assailants*."

selecting such specimens only of dogmatic teaching as have reference to the points in question—the works and attributes of Deity; and taking the Scriptures as a whole, since the Old and New Testament alike came through the same lowly race to the other nations of the earth.

385. The first doctrine taught in this Revelation is one to which we have seen all nature give its testimony—that *there is a Being by whom all things exist*. The dogma of “the eternal existence of things” is indeed not mentioned in its pages, because no effort is made therein to controvert systems of false philosophy, except by an exhibition of the true; but the falsehood of that notion, which we saw in our first chapter *must* be false, is unequivocally declared in the opening chapter of the Book in question: “*In the beginning God created the heavens and the earth.*” *

386. To multiply quotations, in order to show that the doctrine of creation is asserted in this professed Revelation from God, would be utterly needless. It is one of the chief objections brought by Volney, and other Sceptics, against the Holy Scriptures, that they speak of the Universe as a mere machine, the production of a Being from whom it is entirely distinct. Every portion of “the word” seems to echo the glowing language of the Prophet: “*Lift up your eyes on high, and behold who hath CREATED these things, that bringeth out their host by number: He calleth them all by names; by the greatness of His might, for that He is strong in power, not one faileth!*” † The Apostle Paul, indeed, in language not less directly inferential than clearly argumentative, deduces the existence of a Deity from the existence of the visible Universe, where he declares, that *the invisible things of God, even His eternal power and Godhead, are clearly seen FROM THE CREATION OF THE WORLD—being understood by the things that are made—so that unbelievers are without excuse.* ‡

387. There were, however, other doctrines, besides that of creation, deduced from our first survey of matter, even before we entered upon an examination of its disposition and colloca-

* Genesis i. 1.

† Isaiah xl. 26.

‡ Romans i. 20. The English reading is (above) somewhat transposed, to render, as I conceive, the sense more transparent.

tion. These were, the necessary existence, and the eternity and immensity, of Deity, with His consequent immutability; and the non-eternity and non-immensity of the Universe, with its consequent mutability. We saw, with regard to that Being, whose existence was necessary from eternity, in order to originate all other things, that the same necessity which called for His existence in one point of eternity and space applies with equal force to every other point, and that He who is eternal and immense must necessarily be immutable. And what says the Revelation to attributes like these? While exhibiting to us JEHOVAH ELOHIM, a TRIUNE Deity, who by this, His mode of existence, could be at once GOD INCOMPREHENSIBLE, GOD MANIFEST, and GOD COMMUNICABLE—still, for abstract Deity, it claims, in the plainest language, the attributes of self-existence, eternity, immensity, and immutability.

The very name JEHOVAH signifies SELF-EXISTENCE; and that attribute, as well as eternity, is comprehended in the other incommunicable name, "I AM." In different portions of Scripture, as if to bring the Unbounded One by three easier steps to our view, God is spoken of as the Being who "*is, and was, and is to come,*"* and as "*the same yesterday, to-day, and for ever;*"† but the nature of eternity, in its unity and completeness, as well as the eternity of Deity, is involved in this great name, I AM. Moses, again, calls the Lord the "*eternal God.*"‡ The inspired Psalmist, in addressing Him, does not say, "*Thou WAST from everlasting,*" which might imply a succession of ages in His existence. He sees eternity—the eternity of Deity—as one unenduring *now*, and exclaims, "*Thou ART from everlasting;*"§ and again, "*From everlasting to everlasting Thou ART God.*"|| Isaiah, too, speaks of Deity, as "*the high and lofty One, that inhabiteth eternity;*"¶ and St Paul, as though to distinguish eternity from immortality, or endless duration, with which it is so often confounded, speaks of Christ in his complex nature, as "*the King ETERNAL, IMMORTAL, invisible, the only wise God.*"**

388. As regards the immensity, or omnipresence, of the God

* Rev. xi. 17. † Heb. xiii. 8. ‡ Deut. xxxiii. 27.

§ Psalm xciii. 2.

|| Psalm xc. 2.

¶ Isaiah lvii. 15.

** 1 Timothy i. 27.

of Revelation, it is said, that "*the heaven, [expansion,] and heaven of heavens, cannot contain Him.*"* "*Canst thou,*" said Zophar to Job, "*by searching find out God? Canst thou find out the Almighty to perfection? It is high as heaven; what canst thou do? deeper than hell; what canst thou know?*"† "*Whither,*" says David, "*shall I flee from Thy presence? If I ascend up into heaven, Thou art there; if I make my bed in hell, behold Thou art there; if I take the wings of the morning, and flee into the uttermost parts of the sea, even there shall Thy hand lead me, and Thy right hand shall hold me.*"‡ "*In Him,*" too, we are taught that "*we live, and move, and have our being;*"§ and though a contracted philosopher would teach us to confine the meaning of these words to the power and influence of God, and understand them rather as meaning *through* than *in* Him, yet, such is neither the language of Revelation, nor a true interpretation of nature's voice, which teaches us that *in* Him—in His veritable presence, as the Omnipresent, the Immense—" *we live, and move, and have our being.*"

389. Consistent, too, with those of nature and reason, are the declarations of Scripture, respecting the immutability of Deity. They tell us, He is the Lord, and "*changeth not;*"|| that He is without "*variableness, or shadow of turning;*"¶ "*the same yesterday, to-day, and for ever.*"**

390. And now with regard to the finitude—the non-eternity and non-immensity of the Universe. A "beginning" of *material* things, as asserted in the first verse of Genesis, is so natural a deduction from the simple fact of their existence, that it seems to be held as an axiom by the vast majority of mankind. Yet that more difficult deduction—the necessity of a commencement of *duration*, a starting-point in eternity, from which succession of ages might commence, seems to have escaped alike the notice of all ancient Philosophers and Cosmogonists; and among early writings, a reference to such a fact appears in the Holy Scriptures alone. There, by implication, it may be traced in various passages, as though taken for granted in all references to *time*. But there is one place

* 2 Chronicles ii. 6; *Ibid.* vi. 18; 1 Kings viii. 27.

† Job xi. 7, 8.

‡ Psalm cxxxix. 7—10.

§ Acts xvii. 28.

|| Malachi iii. 6.

¶ James i. 17.

** Hebrews xiii. 8.

where the doctrine is asserted in the clearest language. It will be found in the first chapter of St Paul's Epistle to the Hebrews, verse the second, where the Apostle, speaking of what God had done by Christ, says, "ὁὖ οὖ καὶ τοὺς αἰῶνας ἐποίησεν—by [or through] *whom also He made* [or constituted] *the enduring times.*" Here the beginning of duration is clearly pointed out, when the Eternal Word left the bosom of the Father, to manifest Deity by outward act of creation, forming a point, as it were, in eternity, from which history might start, and the long ages of immortality commence.

391. The non-immensity of material things is as necessary a deduction from *creation* as their non-eternity, though the latter is often less clearly recognized by the human mind. It may be difficult, indeed, to find a passage in Scripture where the *bounded* nature of the Universe, in its absolute sense, is expressly declared. So clear, however, is its general and inferential teaching on this matter, that it is frequently brought as an objection against its "messages from heaven," that the persons through whom they were communicated evidently knew little or nothing of the vastness of creation—as though he who bore express and particular tidings from a king must necessarily possess all that monarch's knowledge! They spoke of the bounded nature of the things with which they were acquainted, when drawing comparisons between the garnished and apparently stable earth, and the starry heavens, and God;* and they were not commissioned to speak to the people of things they could neither understand nor conceive of, the far-off invisible stars, and the still more distant nebulae.

392. The mutability of finite things, as contrasted with the immutability of Deity, is the continual theme of the Hebrew Bards and Prophets. The Scriptures are so full of references to it, that it is needless to adduce passages in confirmation. They even extend our views of that immutability from the telluric to the uranological portion of the Universe, where, to quote one instance, an inspired writer exclaims—"The heavens shall wax old like a garment: as a vesture shalt Thou change them, and they shall be changed; but Thou art the same, and Thy years shall have no end."†

* See especially Isaiah xl.

† Psalm cii. 26, 27.

Thus much, then, for those attributes of Deity which were found to be necessary in the first, or more metaphysical, portion of our inquiry, wherein we saw that the bare existence of the material Universe testified to the prior existence of a Being *immense, eternal, and immutable*.

393. In our further search into the wide fields of Nature, we found abundant reasons for concluding, that, in addition to these attributes, the Being from whom the Universe proceeded must be in possession of *infinite power, wisdom, and goodness*. And such a Being, also, is the one whom Revelation has made known. In Genesis eighteenth, God's power and wisdom are both declared, in the interrogation, "*Is anything too hard for the Lord?*" * In the fifth chapter of Job we read of God as one who "*doeth great things and unsearchable: marvellous things without number.*" † Again, in the thirty-sixth chapter, we meet with the exclamation, "*Behold, God is mighty! He is mighty in strength and wisdom.*" ‡ The Psalms are full of allusions to those attributes of Deity, so full that it is difficult to make a selection; and as they were the formularies of the Temple worship—the liturgy of the Jews—the declarations of those attributes which *they* contain, may, perhaps, be considered to carry more weight than any others. In the twenty-fifth, it is said, that the Lord is "*good and upright.*" § In the thirty-first, the expression is amplified, where the author, wrapt in the sweet contemplation, exclaims, "*Oh how great is Thy goodness, which Thou hast laid up for them that fear Thee!*" || In the thirty-third we are told, "*the counsel of the Lord standeth for ever:*" ¶ and in the sixty-sixth, that "*He ruleth by His power for ever; His eyes behold the nations.*" ** In the sixty-fifth, the writer utters the declaration, "*Thou crownest the year with Thy goodness, and Thy paths drop fatness.*" †† In the hundred and fourth, he says, "*O Lord! how manifold are Thy works, in wisdom hast thou made them all.*" ‡‡ In the hundred and seventh, he exclaims, in still greater ecstasy, "*Oh that men would praise the Lord for His goodness, and for His wonderful works to the children of men!*" §§ Again, in the hundred and nineteenth, the Psalmist, address-

* Ver. 14. † Ver. 9. ‡ Ver. 5. § Ver. 8. || Ver. 19.
¶ Ver. 11. ** Ver. 7. †† Ver. 11. ‡‡ Ver. 24. §§ Ver. 8.

ing the Deity, says, "*Thou art good, and doest good; teach me Thy statutes!*" * In the hundred and forty-fifth, He "*whose tender mercies are over all His works,*" is described as "*opening His hand, and satisfying the desire of every living thing;*" † and in the last Psalm but three (the hundred and forty-seventh), it is written, "*Great is the Lord, and of great power: His understanding is infinite!*" ‡

In the Proverbs of the King of Israel, we find the author, in the third chapter, declaring—"The Lord by wisdom hath founded the earth; by understanding hath He established the heavens." § The prophet Jeremiah, in his tenth chapter, exclaims—"He hath made the earth by His power, He hath established the world by His wisdom, and hath stretched out the heavens by His discretion." || Again, in his thirty-first chapter, he is commissioned to utter the declaration—"My people shall be satisfied with my goodness, saith the Lord." ¶

In the New Testament, the power, wisdom, and goodness of God are the continual theme of the writers. There the constant subject, indeed, is "Christ and Him crucified:" the grand scheme of the redemption of the world from sin and death to happiness and life immortal, which exhibits that power, wisdom, and goodness in a manner most transcendent. Yet, in the New Testament, as well as in the Old, there are a thousand incidental references to God as a Creator and Provider, exhibiting in those relations, as well as in the nearer one which by incarnation He assumed, His goodness, His wisdom, and His power.

394. Thus, then, as to these attributes of Deity, which we had already discovered by our investigations of the visible Universe, the teaching of nature and Revelation is the same. And is it rational to reject the testimony of Revelation as spurious and untrue, merely because it tells us other things which nature was incapable of teaching? Seeing that on subjects respecting which they *both* speak, their utterances are alike, it is unphilosophical, it is madness, to reject the supplementary teachings of Revelation, unless, indeed, they can be proved to be inconsistent with facts which the Universe re-

* Ver. 68.

† Ver. 16.

‡ Ver. 5.

§ Ver. 19.

|| Ver. 12.

¶ Ver. 14.

veals. And what *is* the nature of those additional teachings? Are they discordant notes in nature's hymn of praise? or do they add fresh strains, to complete the melody, and render it more harmonious? Do they thicken the clouds of discouragement that have ever hung around man's moral hemisphere; or do they point to an opening in those clouds, through which the aspiring heart and longing eye may see the bright blue heaven, and the light of the meridian sun? Do they meet us like a new disturbing force in the Universe, deranging the motions of its orbs, and turning order into confusion; or like a counteracting impulse to a planet which has been drawn from its mean orbit, winning it back by a rival attraction to the long-used path? Do they come with the crash and the wild sweep of a tornado, and turn fertility to desolation; or like the soft airs of spring, to revive the drooping earth after the icy reign of winter? Tend they to involve the mind in inextricable difficulties, or to clear away some of the difficulties in which it hath always been involved? Are they discordant to the implanted and transmitted instincts of our nature; or do they appear to be an answer to those instincts—an answer which has long been felt after, but not previously apprehended? Strike they through the soul like the sharp pang of death; or do they seem like the knowledge and the rest for which burdened nature has groaned so long?

395. The wisest Philosophers of Greece declared a Revelation necessary; and these supplementary teachings of the Scriptures contain the very doctrinal truths for which they sought it. They asked for light, and light has been vouchsafed. To man, ever fearful, and burdened with a consciousness of sin, for which, in his blindness, he invented oblations and piacular sacrifices without number, a great Atonement is made known, through which sin can be pardoned, while God's holiness remains unsullied. To the heart panting after happiness, is happiness offered as the free gift of heaven. To the soul longing after immortality, is the glad announcement made of life immortal purchased and secured.

396. And in what consists the discordance between reason and those great additional facts and doctrines which Revelation has made known? Are the two so irreconcilable, that, for the

annunciation of these, the Sceptic can safely reject a Volume which professes to be a message from his Maker?

First, we have a statement of the great fact of the Fall of Man and the Origin of Evil. Nature and experience testify that evil, moral and physical, does exist, but cannot point us to its origin. Could it, then, exist without beginning? or is there in a declaration of its origin something so inconsistent with reason, that, on account of this doctrine, we ought to reject a testimony with which, in other respects, that of nature coincides?

Secondly, we have a declarative assurance of a way of restoration. We are taught that "a channel has been opened up, through a high Mediatorship between God and man, for the descent of a grace and a mercy the most exuberant on a guilty world; and through it the overtures of reconciliation are extended unto all; and a sceptre of forgiveness, but of forgiveness consecrated by the blood of a great Atonement, has been stretched forth, even to the most polluted and worthless outcasts of the human family; and thus the goodness of the Divinity obtained its fullest vindication, yet not a goodness at the expense of justice—for the affront due to an outraged law has been amply repaired by the homage to its authority of an illustrious Sufferer, who took upon Himself the burden of all those penalties which we should have borne, and in the spectacle of whose deep and mysterious sacrifice, God's hatred of moral evil stands forth in most impressive demonstration."* And is there anything so discordant with reason, in the fact, that a God of goodness and of purity should thus provide a way by which those who have braved his justice, and done despite to the authority of His law, should find acceptance in His mercy, without any compromise of dignity or truth?

Thirdly, we have in these supplementary teachings a declaration of the means by which man may obtain a personal interest in this Atonement—*by faith*. And is there anything inconsistent with reason in this, that as the medium of our fall was giving God the lie, and believing the declaration of the tempter, the medium of our restoration should be

* See Chalmers's "Bridgewater Treatise," concluding chapter.

giving the tempter the lie, and believing the declaration of God? *

Fourthly, we have embodied, in plain teaching, as well as under a variety of illustrations, the doctrine of conversion of heart, or new-birth unto righteousness, as the result of faith. Nor does there appear anything improbable, or contrary to analogy, in this. When a man who has rejected God, or viewed Him as an enemy who watches his thoughts and actions to bring him into judgment,—when such a man wakes to the error of his whole life, and sees in that Divine Being a God of Love, who, “*as a father pitieth his children, so pitieth them that fear Him,*” and though the sin is repugnant to His nature, delights to save the sinner,—it is not unnatural that, with his change of views, his heart and his affections should be changed. Erewhile his language was, “*Depart from me, for I desire not the knowledge of Thy ways,*” or “*Why followest Thou me with Thine eye, and contendest against me in the fierceness of Thine anger.*” Now he can lift up his eyes to heaven, and cry, in the full spirit of adoption, “My Father! my God! great is my sin, but Thy mercy is greater! *Thou hast loved me with an everlasting love! Thou hast redeemed me with the blood of Thy Son! and with loving-kindness hast Thou drawn me. Whom have I in heaven but Thee? and there is none upon earth that I desire in comparison with Thee.*” And is it contrary to analogy, that such a change should be accompanied by a change in a man’s whole course of life, so that, with an inspired Apostle, he might exclaim, “*Old things are passed away, behold all things are become new?*” New incentives induce new volitions; and a change of life, as well as feeling, is the inevitable consequence of a change of will.

The last cardinal doctrine for which Revelation is usually rejected, is that of the immortality of the soul, and a future state of rewards and punishments. And is this doctrine so discordant with reason, that a Revelation, which accords with the voice of nature on so many points, may, for its assertion, be safely rejected as untrue? We have seen that, without a future existence, the course of Providence—the accumulated events of time—would form an enigma which no wisdom

* See a Tract on “Faith,” by Dr J. B. Melson.

would be capable of solving. We have seen that, without it, while the instinctive desires and operations of every other living creature have an end and an object, those of the human soul have *no* object, and meet with *no* answer; but are as a mockery in the Universe. The soul's immortality, as well as an overruling Providence, and the freedom of the will,* are articles of universal belief. Often they seem to slumber, or exist only as germs of thought and feeling. Oftener still they do not stand forth clearly expressed in words, or embodied in definite notions; but their prevalence is universal where Scepticism does not reign. And shall we, then, in the last place, refuse to recognize Revelation, because it gives an answer to those desires and longings, and a clear embodiment of those often vague ideas?

397. We have in the Christian Revelation that which nature and which reason asked for,—the filling up of an hiatus,—the answer to unnumbered queries,—the clear and explicit response to an almost universal cry. Lost in mazes which they could not see through, in intricacies which they could not unravel, Bards and Philosophers—the prophet-priests of nature—have cried for light to HIM who only could impart it. They, in their censers, caught up nature's groans, and offered them to heaven. They gave them voice, imploring a reply in Revelation, to clear away the overshadowing clouds. And, lo! the voice is answered—Revelation given! The earnest longings of the soul, which else were but a mockery, meet with a response that answers all really anxious questionings, solves the great enigmas of Providence, and clears away the difficulties of this life, while pointing to another yet to come. And who are they who would reject that answer, because it does not accord in all respects with the short-sighted views of men who themselves cannot agree as to what answer they *would* receive? Who are they who doubt the Revelation, because its evidence is insufficient to remove the credulity of men who themselves cannot agree as to what evidence *should* be deemed

* It is, perhaps, proper to state, that by this term I mean man's natural freedom of action, and do not use the words in the limited sense in which they are often employed in religious controversy.

conclusive? Come whence they may, the rejecter and the doubter tread not in the path of wisdom!

398. Man wandered in darkness, and longed often and earnestly for light. And light has dawned! Yes! a day-spring appears in the East! The Sun of Righteousness arises with healing in its beams! It gilds the hill of Calvary, the Mount of Propitiation, and shows us written on its summit, in characters of blood—the blood of the Atonement—“*Immortal Life!*”

399. Oh! hearken, then, man! to that message, which, speeding through the Universe, as on the wires of some inscrutable telegraph, flies, as it were, in a moment, from the centre to the outer shores of being! Hosanna! It is the message of redemption! the transcript of the heart of Him whose name is Love! Truths, glorious, everlasting, soul-reviving truths, such as nature cannot teach, are taught us in the Word of Life,—where a way of access is opened for a *fallen and sinful creature* to a *sin-hating, yet sinner-loving God!* Life through death—redemption from the ruins of the Fall—and an immortality of *stainless*, and, consequently, of *painless*, existence, are there opened up to us in all their beauty, and in all their life-giving power! The rays of ineffable glory, which, too bright to gaze upon, hid the Deity from view, are passing from before His throne! The ardent longings of the creature are answered! and nature shouts exultingly—“*A God Revealed!*”

God comes! He comes from the throne of Eternity and Immensity, that the earnest desirings of the creature may be satisfied with the vision of the True!

God comes from the throne of Eternity and Immensity, and stoops to the limits of creatureship, that the creature may be renewed in the image of its Maker!

God comes from the Throne of Ineffable Glory to lay down His own life for the redemption of His creatures!

Wake! voices of harmony! awake your loudest notes! wake, jubilant, the echoes of His praise!

Angels! who watch the development of His purposes in the mysteries of creation, shout ye! for the greatest of its mysteries is accomplished!—sin pardoned, life restored!

Forces of nature! Spirits ministrant that do His bidding!

Impulses that move the waves of sound! awake ye the sweet echoes of the Universe! while the glad message peals from star to star, from world to world, and shout—“*A God Revealed!*”

And thou, O man! thou marvel of Creation! for whose sake these wonders are performed,—thou “God-breathed” spirit in a tenement of clay! swell with thy voice the living echoes! shout, till all earth and heaven become vocal! and from each sun and system, from every constellation and galaxy, the Universe reverberates the message of “A GOD REVEALED!”

CHAPTER XVI.

THE POWER, WISDOM, AND GOODNESS OF GOD, DISPLAYED IN THE CONTINUED SUCCESSION OF EVIDENCES TO THE TRUTH OF HIS REVELATION—IN MIRACLES—IN PROPHECIES, AND THEIR FULFILMENT—AND IN THE NUMEROUS MODERN DISCOVERIES IN EGYPT, NINEVEH, ARABIA, ETC., CORROBORATIVE OF THE TRUTH OF EARLY SCRIPTURE HISTORY.

400. IT will scarcely be questioned, that, if there be a God all-powerful, wise, and good, and if by any necessity on the part of the creature, or superabounding grace on His part, He should be induced to reveal Himself to the intelligent beings He has formed, He would furnish sufficient evidence of the truth of the Revelation He had made.

401. To force conviction by an inwrought bias of the mind, would be sufficient for this purpose, since, by such means, evidence not strong in itself might be made to operate with irresistible force; but we have no sufficient reason to believe that to such a mode of conviction the Creator would resort; because, by His doing so, a link, and a most important one, in the chain of being would be broken, and creation lose its brightest ornament—the creature-image of its God. Having

formed a *reasoning* and *responsible* creature, it is both natural and philosophical to conclude that He would deal with him *as such*, and appeal to his reasoning and reflecting powers,—to his understanding and his judgment,—rather than thus rob him of his freedom and responsibility, and place him on a level with the humbler and instinctive tribes.

402. The question, then, arises—by what means short of direct action is God to operate upon the minds of those to whom He has made a Revelation of himself, in order to convince them of its truth. It is requisite that those evidences should, at least, in the first instance, be such as would appeal to the senses—evidences about which there could be no mistake. The senses might be appealed to by a visible appearance, or apparition of exceeding glory; but this, to be sufficient, must be made to every man, or one might doubt another's sight—especially after there have been numerous and authenticated instances of optical illusions. The senses might also be appealed to by an audible voice from heaven; but that voice, if it wrought conviction in the minds of those who heard it, might not be sufficient to convince others through the medium of their testimony; since it might be argued that the sense of hearing was not infallible, and that, even if the witnesses had heard a voice, they could not be infallibly certain that it was the very voice of God.

403. There is, however, another mode of inducing conviction, not subject to such ostensible objections. It is, a suspension or control of the ordinary course and laws of nature, sufficient to convince the witnesses thereof that He who exercised it was nature's God.* And if the acts or exercise in question appealed to several of the senses, so that one might be able to correct the false impressions of another, that evidence would be still more irrefragable.

404. Thus, if the waters of the sea divided, and stood upon a heap on either side, that the chosen witnesses might pass over dry-shod; if food for the hungry were rained down from

* A miracle is not necessarily a suspension, much less a violation, of natural laws, but simply such a control of natural causes as bespeaks the intervention of a Cause to which they are all secondary and obedient."—*Vaughan's "Age and Christianity,"* p. 91.

heaven ; if bitter waters were made sweet, without the use of any means which could produce a chemical change ; if a stream gushed out of the smitten rock, that multitudes, whose tongues failed them for thirst, might drink and be satisfied,—such marvels would be sufficient to produce conviction in the minds of those who witnessed them, that they must have been wrought by the power of nature's Creator and Preserver. And thus, if, at the command of One who wandered over earth as a Teacher and a Benefactor to mankind, diseases fled, death loosed his hold upon his victims, storms ceased, water became as dry land beneath His feet, and thousands were filled and satisfied with food barely sufficient for the sustenance of ten ; those who witnessed such miracles must have been convinced that they were not accomplished by the power of man alone. Such departures from nature's ordinary course appeal at once to every sense, and to the reasoning powers. The sight, the hearing, smell, and taste, and feeling, each able to correct the wrong impressions of the other, all testify that there is no false impression ; while reason, judging from after-effects, declares that there is no illusion there. And when such miracles are appealed to, by those who are the instruments of working them, as testimonies to the truth of a message they have brought from Him by whose power the laws of nature are suspended or controlled, credentials like these demand for such ambassadors a reverent audience.

405. It is true, that, in the first and strictest sense, this class of "prodigies," like visible apparitions or audible voices, could only be convincing to the immediate witnesses. Yet the testimony of those witnesses must have far greater weight in the one case than in the other ; because there is a far less chance of their being deceived. And, as is tersely remarked by Abercrombie, "There is a species of testimony on which we can rely with the same confidence as on the uniformity of the course of nature. Thus, if we find a man who in other respects shows every indication of a sound mind, relating an event which happened under his own inspection, in such circumstances that he could not possibly be deceived, if this circumstance contribute in no respect to his credit or advantage, but on the contrary expose him to ridicule, con-

tempt, and danger; if, notwithstanding, he persevere in it, under every species of persecution, and even to the suffering of death; to suppose such a testimony intended to deceive would be to assume a deviation from the established course of human character, as remarkable as any [miraculous] event which it could possibly convey to us. This might be maintained in regard to one such testimony; but if we find numerous witnesses agreeing in the same testimony, all equally informed of the facts, all showing the same character of credibility, and without the possibility of concert, or connivance, the evidence becomes, not convincing only, but incontrovertible.”* If, moreover, in addition to such a testimony, we had commemorative observances connected with the Revelation, and the “signs and wonders” by which it was accompanied—observances instituted at the time, evidently intended to commemorate the events which that Revelation records, and *kept up ever since* the *alleged* events, those observances would form another and convincing evidence to after ages that such a Revelation was true; because “they could neither have been fabricated at any intermediate period, nor at the very time and place where they were said to have occurred, in the midst of thousands who were deeply interested in detecting their fallacy.”

And such records *have* been written, and such observances *have* been instituted, to attest the truth of His Revelation, by the providential care of that great Being whose goodness is only equalled by His wisdom and His power!

406. There is, however, another mode of operation open to Infinite power, which would be more convincing to rational creatures living in after ages than to those who were witnesses of its exercise; and in this mode, also, it is only rational to suppose that wisdom and goodness would lead such power to operate. It is, the inspiration of chosen men to predict events yet future, as though they were recording the history of the past; thus manifesting that He who inspired them was One who sees the end from the beginning. And in this way, also, the Author of Revelation has operated so effectually, that he must be blind indeed who can calmly read and meditate, compare the prediction with the fulfilment, and yet *not believe*.

* Abercrombie on the Intellectual Powers, p. 66.

To enter largely into the evidences of prophecy, after it has been so ably done by Newton, Keith, and others, would not only be needless, but might also seem impertinent. If I cite a few instances, they will chiefly be for the sake of after reference, when replying to the cavils of the Rationalist. My object now is to show the wisdom and goodness of God in instituting such a class and series of evidences, whose force accumulates as time rolls on, and shall still accumulate, until that glorious era when doubt shall be banished from the earth. Man might laugh, and has laughed, at the record of miracles; and, refusing to search into the evidences of their authenticity, may pronounce them to be old wives' fables: but show him, in the Book which records them, and which professes to be a Revelation from God, a record of events of which he himself is a witness, or in which he himself is a participator, and yet a record written hundreds or thousands of years before, and there is something startling in the thought, which spoils his mirth, and causes the wrinkle of deep, careful thought to succeed the hilarity of derision.

407. When Cyrus,* of Persia, was shown his own name, and deeds, and character, legibly written in the prophecies of Isaiah, and was satisfied of its age and authenticity, he would need no further evidence to convince him that the Jehovah of the Hebrews was the one true God. When Joseph Woolf beheld the Rechabites encamped before the walls of Sana, and heard their exulting shout, as they pointed to the prophecy of Jeremiah, and its fulfilment in themselves,—that “Jonadab, the son of Rechab, should never want a man to stand before the Lord,”—if he had previously doubted the inspiration of Jeremiah, he must have been a believer then. When the traveller passes the site of ancient Tyre, or wanders among the

* There is a difficulty connected with this passage, but I have yet seen no reason to doubt the propriety of our authorized translation of the word *CORESH* into *Cyrus*. If it means merely, as suggested in some quarters, a Persian monarch, the reference is still as clear to *the* monarch who overthrew Babylon and released the Jews. The learned Infidels of past ages, instead of disputing the propriety of the translation, corroborated it by insisting that it was an interpolation of the crafty Jews to enlist the feelings of that monarch in their favour.

ruins of Edom, or the "pools of water" that mark the spot where Babylon once stood, and sees in them so exact and literal a fulfilment of the predictions of Scripture, he must be a Sceptic indeed, if insensible to the conviction, that He who inspired those predictions was Himself the great Ruler of all things. When we contemplate a Volney going forth from the land of the Infidel, where the sanctuary of God was defiled, and the altar of "reason" erected, while the Sabbath was abolished, and time measured by decades, that such a standing monument of Revelation might be forgotten,—when we contemplate such a man, going from such a land, for the purpose of overthrowing Revelation, and, standing in the midst of Syria's ruins, to utter in bitterness the very sentiments which Moses had predicted three thousand years before—"the stranger that cometh from a far land" should utter, at sight of "*the plagues of that land, and the sicknesses which the Lord hath laid upon it*"*—incredulous indeed must be the heart which refuses to own that the hand of the Lord was in it. And, lastly, when we contemplate the Jew, (that standing evidence for God in every land,) the destruction of the city of his glory, so exactly and so literally predicted; his dispersion among all nations—and yet his marvellous continuance in a state of separation from them; with all the multitudinous evidences of the truth of Scripture connected with his rites and religious observances—that man must lack the faculty of appreciating evidence, who, after a patient examination of the facts connected with that people's past and present history, can come to any other conclusion, than that the God of Revelation is the Ruler of the world.†

* Deuteronomy xxix. 22—24. Volney's unconscious fulfilment of the prediction runs as follows ("Ruins," book 2):—"From whence proceed such melancholy revolutions? For what cause is the fortune of these countries so strikingly changed? Why are so many cities destroyed? Why is not that ancient population reproduced and perpetuated?—a mysterious God exercises His incomprehensible judgments. He has doubtless pronounced a secret malediction against the earth. He has struck with a curse the present race of men, in revenge of past generations."—"Wherefore hath the Lord done thus unto this land? What meaneth the heat of His great anger?"

† In the second of the "*Essays and Reviews*" an attempt is made to under-

408. But God, in tender compassion to our fallen and perverted reason, has vouchsafed to us another class of evidences also, in which His wisdom and His goodness are equally apparent. As time rolls onward even history grows old, and prediction and fulfilment alike are involved in the mists of ages. The heart, which Revelation declares to be enmity against God, suggests the possibility of the prediction being uttered after the event, or both alike being myths and fables. It casts doubt upon the record of transactions, of which the evidences seem to have passed away for ever. "Why," he exclaims, "why may we not believe that references in ancient documents to after events were added to those documents at a subsequent period?" "Why may we not take leave to suppose that the passage in an ancient profane record appealed to by Rollin the historian as an evidence of the miraculous exode of Israel from Egypt, was an interpolation by some after hand?" And, "Wherefore should we conclude that Nineveh was such a city as the Scripture describes,—'an exceeding great city of three days' journey,' merely because some undistinguished ruins, bearing the name of Nimrod, disfigure the face of Syria?" The objection is readily caught at; and Rationalism, that modern foe of Revelation, creeps on stealthily, step by step, in hope of final triumph. But God, whose wisdom and whose goodness never fail, has provided for this emergency also. As though in pity to our weakness, He casts up, age after age,

mine the predictive character of the prophecies. For this purpose the book of Isaiah is divided into two, and the latter part represented as being written 200 years after—the 53rd chapter, so plainly predictive of Messiah, being treated as a historical sketch of the life of Jeremiah. And what is the evidence on which, contrary to all testimony and to opposite evidence of the most decisive character, this attempt is made to turn predictive into merely moral teaching! It is the use of Chaldaic forms of the Hebrew verb *Hiphil*; the mention of the name of Cyrus; and the adoption of the Chaldaic name *sagan* for prince. As though nearly a century of intercourse were not sufficient to introduce a word that must have become as familiar to them as *Savan* to Englishmen. And as though he who seeth the end from the beginning could not see the name of the Persian conqueror by whose aid Jerusalem was to be restored. An elaborate answer to this "Review" of Dr Rowland Williams, as well as most of the other "Essays and Reviews," will be found in Birts's "Bible and Modern Thought," published by the Tract Society.

long-buried evidences from the tombs of the past, which tell of the deeds of other years,—as coins that earth had long hidden, but not destroyed, testify to the reality of the monarchs whose superscriptions they bear.

409. Arise! shake off thy dust, proud remnant of antiquity! yea, shake off thy ashes, Mount Nimroud! And ye, huge painted sepulchres of kings, Egyptian Pyramids, whose walls spoke long in an unknown language to mankind, whose dark enigmas are, when needed most, transformed to living utterances, speak ye, and tell the secrets of the past! reveal the folly of the Infidel, who based upon your hieroglyphics unfounded schemes; and show, inscribed upon your walls, the very incidents the Scriptures tell!

410. The discovery of a key to the hieroglyphic inscriptions of monumental Egypt has thrown new light upon ancient history. It has dispelled the dreams of many, who had built upon her picture-representations theories of wars between that country and far distant nations, which at that time were not in existence. It has done more than this, for it has afforded us some further insight into the history of those nations with which Israel afterwards contended—the Canaanite usurpers of the Land of Promise. *These* are seen to be the enemies over whom those pictured chambers celebrate Egyptian conquests. And not only are the manners and customs of those nations shown by this independent testimony to be the same as Scripture represents them, but even incidents mentioned in the Hebrew records are found portrayed, with unmistakeable accuracy, upon those pictured walls.* And what wisdom and

* See Osburn's "Ancient Egypt, her Testimony to the Truth of the Bible," *passim*. As one of the most remarkable incidental confirmations of Jewish history, I may mention that Champollion discovered among the paintings on the south wall of the grand hall of the temple at Karnak, a representation of Pharaoh Sesoneh (Shishek), dragging a great number of human figures to the feet of the gods, each one having written on his breast the name of the country of which he is the representative; and among them is Rehoboam, king of Judah, with the name JAUDH MALK—"Judah Malek," or king of Judah—thus inscribed upon him. (Particulars of this and other most interesting matters will also be found in Lepsius's "Letters from Egypt," &c., translated by Mackenzie, London, 1853.) As to the immense age once claimed for the Egyptian nation, as a nation, it seems now to be universally acknowledged that dynasties, once

goodness do we find exhibited in such testimony as this. In an age when a mistaken Rationalism characterizes all these incidents as myths and allegories, in which some hidden meaning is contained; and a still more mistaken pyrrhonism designates them all as priestly fabrications—an ancient and contemporary document is, as it were, unsealed; and its unrolled volume, by corroborating the incidental passages from the history of other nations which the Hebrew records contain, adds new, unexpected, and unexceptionable testimony to the verity of the whole.

411. Passing over all recent discoveries in Palestine,—a land that seems desolate, as though in mourning for her children, but ready again to burst forth in all her ancient fertility when those children are restored,—and pursuing our way to the banks of the Tigris, what new evidences do we there meet with of the correctness of the Sacred Writings, in their brief descriptions of the events and peoples of neighbouring and more distant states? The excavations at Nimroud, Kouyunjik, and Khorsabad, have placed before us, not merely records, reminiscences, or shadows, but the realities of the past. We see some of the very sculptured walls, the monstrous bas-reliefs, the chiselled colossal figures, that formed the pride of the great city Nineveh three thousand years ago. They testify to the correctness of the Prophet's denunciations, who breathed out the "burdens" of that city in the language of inspiration. They supply, as in sculptured imagery, representations of

thought to be successive, were contemporaneous; which reconciles the chronology with what the Hebrew records, fairly interpreted, will admit. "Manetho's inordinate number of sovereigns," says the *Westminster Review*, No. 70, "may be satisfactorily reduced and brought into unity with biblical chronology, by the now-proved fact, that there were three dynasties (before Osirtesen united upper and lower Egypt) ruling contemporaneously—viz. the Memphite, [the] Shepherds or Cyclopean, and [the] Theban sovereigns—all having signets, and all, if reckoned successively instead of collaterally, making up the entire number of Manetho's chronological list." Moreover, physical Science, that constant foe of myth and fable, testifies to the absurdity of conclusions once drawn from the hieroglyphics of those temples which are built upon the Delta of Egypt, that Delta being a muddy deposit of the Nile, which cannot, as shown by M. Henri, ("*L'Egypte Pharonique*,") have presented the first muddy formation of a morass much more than 5000 years.

events which early Scripture already had narrated.* And while that once "great city" shrinks in its population far be-

* Among the decided corroborations of Scripture which Nineveh has furnished, the following may be instanced:—

1. An inscription, found in the south-west palace of Nimroud, recording the receipt of the "thousand and one talents of silver" paid by Menahem to Pul, king of Assyria. (2 Kings xv. 19.)

2. The records of Sennacherib's invasion of Syria, in the palace of Kouyunjik. Those records do not merely corroborate the statements of the Hebrew chroniclers, but agree with them in every essential particular. For not only do we learn thence that he "came up against all the fenced cities of Judah, and took them," but also that the kings of Egypt sent an army against him, the greater part of which belonged to the king of Milukkhha (Ethiopia). (2 Kings xix. 9.) Of Hezekiah himself, that warlike monarch says, in the language of the inscription, "Because Hezekiah, king of Judah, did not submit to my yoke, forty-six of his strong fenced cities, and innumerable smaller towns which depended on them, I took and plundered; but I left to him Jerusalem, his capital city, and some of the inferior towns around it." This is Colonel Rawlinson's version, with which Dr Hincks's substantially agrees. His translation of the whole passage runs as follows: "Hezekiah, king of Judah, who had not submitted to my authority, forty-six of his principal cities and fortresses, and villages depending upon them, of which I took no account, I captured, and carried away their spoil. I shut up himself within Jerusalem, his capital city. The fortified towns, and the rest of his towns which I spoiled, I severed from his country, and gave to the kings of Escalon, Ekron, and Gaza, so as to make his country small. In addition to the former tribute imposed upon their countries I added a tribute, the nature of which I fixed."

3. The command given to the Prophet Ezekiel, to take a tile and engrave on it a representation of the city of Jerusalem, besieged by its enemies, and invested on every side. This allusion never was understood till these revelations of the region where he dwelt cleared up its meaning, by exhibiting the records of the country thus engraven upon tiles.

4. The sculptured representations, and written record, of the capture of Lachish. The countenances of the figures in these sculptures are, unmistakeably, Jewish; and above one of them, that of the captives brought before the king, is the following inscription: "Sennacherib, the mighty king, king of the country of Assyria, sitting on the throne of Judgment, before the city of Lakhisha. I give permission for its slaughter."

5. The sculptured figure of Dagon, or the fish-god, found in the palace of Kouyunjik. This figure combines the human form with that of a fish; in which form, according to the united opinion of the Hebrew Commentators, the Dagon of Phœnicia and the Philistines was worshipped. (See Selden's "*De diis Syris*," and Beyer's Commentary.) Thus, when the Ark of the Lord was brought into

low the fabled greatness which ancient Greek historians, whose materials were tradition, have given to it, a collocation of their descriptions of its form and size, with the ruins which now stand at the four corners of what is deemed to be its site, will show the Hebrew Prophet's simple description to be perfectly correct, that it was "an exceedingly great city of three days' journey."

412. "Lines of fortification, walls, gates, and towers, would also enclose an area of great extent not covered in every part with the abodes of men closely packed together, as in the old cities of Europe, but having many parks and gardens, fields and orchards, both for pleasure and cultivation, surrounding the public edifices and private homes of the capital."* While the Eastern custom of secluding women in apartments separate from the men, which would render an entire house for each family almost indispensable, will furnish another reason why so small a number of persons as the Prophet's language would give to the city, occupied so wide an area.

413. And can such facts give evidence other than satisfactory, that they who, breathing out its future doom, spake of its pictured walls, and ceilings of vermilion, lived, not after the prediction was fulfilled, but when those walls and ceilings were open to the eye? Whose sight could pierce through the ashes which immured the buried palaces, and see what lay beneath them, to give a colouring to such grave imposture as an

the great temple of the idol at Ashdod, and the statue fell a second time, "the head of Dagon and both the palms of his hands were cut off upon the threshold; only the *fishy part* (*the stump*, English version) of Dagon was left to him." (See Layard's "Nineveh and Babylon," p. 344.)

6. The mention, on the Obelisk from the central palace of Nimroud, of Jehu, king of Israel, and Hazael, king of Syria.

7. The identity of so many names of persons and places mentioned in the Assyrian inscriptions and the Sacred Records. Towards the close of his "Nineveh and Babylon" Layard has given a list of fifty-six of these; and what makes them more remarkable, is the fact, that while the names from these two distinct sources differ little, either in spelling or pronunciation, from each other, they both greatly vary—in some instances so greatly as to render identification difficult or impossible—from those Gentile historians whose writings the world has usually consented to receive as authentic.

* "Blackburn's Nineveh," Lecture II.

imputed prophecy of the city, written subsequently to its ruin? The thought is folly. Shut up, as though hermetically sealed, to keep out the decaying influences of the atmosphere, and fresh as when the Prophet breathed their "burdens," those palace-temples were preserved to greet the wondering sight of the present age, and testify against its Scepticism. Nay, more than this,—as though to add one further testimony to the correctness of prophetic language, and show the agent of their overthrow, (the fiery heat to which they had been subjected,) many of them, when exposed to view, almost before they could be copied, crumbled into dust from the action of the air.

414. And cannot we see evidences of a controlling Providence—of Divine wisdom and goodness—in such an ordination of events, that Nineveh, of whom God commanded His Prophet to say, "I will make thy grave,"—that Nineveh, whose superincumbent ashes formed a burying-place for other races, should herself remain quiet in her sepulchre, till an age like the present, when the reality of her evidences to the truth of Revelation could be properly attested, and their worth be fully understood? If the Mussulman races, in whose possession her ruins so long have continued, had dug out her remains, or let in the air upon those palaces whose sculptured walls had been subjected to a furnace heat, part, at least, of her testimony to the truth of early Scripture would have been invalidated or destroyed. But He who is nature's Creator and Preserver has kept them thus hermetically sealed to give evidence to the truth of His Revelation, in an age when, on the one hand, that evidence cannot be lost; and when, on the other hand, the truth of that Revelation is called in question and denied.

415. Nor is it in Egypt and Nineveh alone that such fresh corroborations of the truth of Revelation are bursting on our view. Babylon has preserved in her inscriptions the disputed name of Belshazzar.* Cilicia, confirming the Scripture

* Sir Henry Rawlinson, in a Lecture delivered at the Royal Institution, June 15, 1855, stated, that inscriptions contained on some tablets he had excavated tended to reconcile the discrepancy between the Greek Historians and the Bible History respecting Belshazzar. The name of Belshazzar is not mentioned by the Greek Historians, the Babylonian king conquered by Cyrus being called by

statement, has revealed her discarded idols, "broken and cast without the city."* Persia has drawn back the curtains of ages,† and disclosed to us the tomb of Daniel, and the palace of Shushan. Sodom and Gomorrah seem to speak to us anew from the Dead Sea's borders.‡ The rocks of Idumea have found a voice;§ and there is reason to believe that Sinai itself, and the district around it, the "Waddy Mokatteb," and the "Djebel Mokatteb," will furnish us with similar evidences, literally "graven with a pen of iron in the rock for ever."||

them Nabonadius; but it appears, from some of the excavated inscriptions, that Belshazzar was the eldest son of Nabonadius, and that he most probably shared the throne with his father. The newspapers of 1856 gave the following additional intelligence: "Major Rawlinson, who is at present engaged in prosecuting the discoveries commenced by Layard and Botta, among the instructive remains of this once gigantic power, has lately discovered, in a state of perfect preservation, what is believed to be the mummy of Nebuchadnezzar. The face of the rebellious monarch of Babylon, covered by one of those gold masks usually found in Assyrian tombs, is described as very handsome—the forehead high and commanding—the features marked and regular. This interesting relic of remote antiquity is for the present preserved in the museum of the East India Company."

* See Barker's "Lares and Penates."

† The newspapers of 1853 informed us, that the Commissioners engaged under the mediation of England and Russia, in marking the boundary-line between Persia and Turkey, discovered the remains of the palace of Shushan, with the tomb of the Prophet Daniel standing not far from it. The locality, and various portions of the remains, correspond exactly with the Scriptural description of the city; and the pavement of red, blue, white, and black marble, mentioned in Esther i. 6, still exists.—See "*Leisure Hour*," Nov. 3, 1853.

‡ I say "seem," because, however confident M. De Saulcy may be, (see his "Journey round the Dead Sea, in 1850 and 1851,") I feel that there are difficulties connected with his supposed discoveries; and that clear identification is, perhaps, impossible.

§ See Keith's "Evidence of Prophecy."

|| See Forster's "One Primeval Language," Part I.: "The voice of Israel from the Rocks of Sinai." London, Bentley, 1851.—I will here add, that if I have only spoken hypothetically of the Sinaitic inscriptions, it is not because I do not appreciate the value of Mr Forster's discovery, if it proves to be such; but because it cannot fairly claim, *until more fully tested*, to be ranked among ascertained facts or established truths: and to build upon evidence which has not been sufficiently tried to be *fully* relied on, might only be injuring the cause we seek to serve. Among the facts of which Mr Forster conceives he has

416. I will add a single example of the wisdom, power, and goodness exhibited in the perfecting of another class of evidences, even more remarkable because of their complication.

When facts, wholly unnecessary to the completeness of a narrative, are with that narrative interwoven; and after appearing detrimental for ages, and causing the authenticity of the whole narrative to be called in question, prove, at length, the strongest means of its corroboration,—if that narrative claimed to be inspired, we might well conceive that such an apparent exercise of prescience was in so far a substantiation of its claim. This is frequently the case in the incidental references to other nations with which the Holy Scriptures abound—references which, if the writers had been impostors, would have formed a certain means of their conviction.* Yet the case I am about to bring under notice is, I acknowledge, one of the most remarkable of its class. In the thirty-ninth chapter of Isaiah, at the first verse, we are informed that “Merodach-Baladan, king of Babylon, sent letters and a present to Hezekiah, (king of Judah,) for he had heard that he had been sick and was recovered.” In the twentieth chapter of the Second Book of Kings, and at the twelfth verse, the same fact is repeated, with a little verbal variation—the name of the king being there given Berodach-Baladan, instead of Merodach. This king of Babylon, to quote the words of Dr Wiseman,† “makes no other appearance in sacred history; and even this one is attended with no inconsiderable difficulty. For

already traced the records in these inscriptions, which he asserts to be the work of the Israelites at the period of the Exode, are—the flight of Pharaoh; the sweetening of the bitter waters of Marah; the events of the battle of Rephidim; the supply of feathered fowl; the plague of serpents; and the lifting up of the brazen serpent in the Wilderness.

* Such incidental evidences are not *confined* to the references to other nations, but often arise from the circumstantiality with which occurrences are related. Thus we are told that Moses, when he had killed the Egyptian, buried him in the sand. For ages it was contended that this could not be true, because there were no sands there wherein he *could* bury him; but Laborde, when walking near Cairo, found a tongue of the sand of the Desert come up even to its borders.

† “Lectures on the Connection of Science and Revealed Religion,” p. 409, &c.

the kingdom of the Assyrians was yet flourishing, and Babylon was only one of its dependencies. Only nine years before, Shalmanassar, the Assyrian monarch, is said to have transported the inhabitants of Babylon to other parts; and Manasses, not many years after, was carried captive to Babylon by the king of Assyria. Again, the Prophet Micheas, [Micah,] about this very period, speaks of the Jews being carried away to Babylon, while the Assyrians are mentioned as the enemies whom they have principally to fear. All these instances incontestably prove that at the time of Hezekiah Babylon was dependent on the Assyrian kings. Who, then, was this Mero-dach-Baladan, king of Babylon? If he was only governor of that city, how could he send an embassy of congratulation to the Jewish sovereign, then at war with his liege lord?"

Such an apparent discrepancy could not escape the notice of the Sceptic; and what made the matter appear worse, was, that profane records were not only silent about any king of the name, but mentioned none with whose history this incident could in any way be reconciled. Herodotus, the so-called "father of authentic history," gave no clue to the unravelling of the difficulty. The canon of Ptolemy furnished no king of the name. Scripture seemed to stand at once in direct contradiction to itself, and to that which might have been expected to corroborate its details: and this instance was seized upon as one of *detected* forgery.

The entire absence of even indirect corroboration, while, under the circumstances of the case, the occurrence was so very unlikely, certainly rendered the passage, though twice repeated in the Sacred Volume, one of considerable doubt and difficulty. And "in this darkness and doubt," to quote again the words of Dr Wiseman, "we must have continued, and the apparent contradiction of this text to other passages would have remained inexplicable, had not the progress of modern Oriental study brought to light a document of the most venerable antiquity. This is nothing less than a fragment of Berossus preserved in the chronicle of Eusebius. This interesting fragment informs us that after Sennacherib's brother had governed Babylon as Assyrian viceroy, Acises unjustly possessed himself of the supreme command. After thirty days

he was murdered by *Merodach-Baladan*, who usurped the sovereignty for six months, when he in turn was killed and succeeded by *Elibus* *Nothing was more probable than that Merodach-Baladan, having seized the throne, should endeavour to unite himself in league with the enemies of his master, against whom he had rebelled."*

Had the matter ended here, I would have left it in the hands of Dr Wiseman ; but at this point, the evidence of providential care, of God's wisdom, power, and goodness, only just begins. Eusebius was a Christian historian ; a Christian also was Gesenius, who recovered this fragment in modern days ; moreover, the existence of such a man as Berosus has been denied ; and there have *not been wanting* those (for I have met with them) who were ready to assert, that, as both the others were *interested in the authentication of the Scriptures, this fragment itself might be only an interpolation, or a forgery.*

And yet, what more could the Sceptic ask, or the Christian hope for, in the shape of corroboration ? Here was a passage, from a perfectly *independent* source, which not only met the difficulty, but explained it also. And *such substantiation of any fact* connected with secular history, would have been considered as even more than sufficient. *Man could conceive of nothing further ; and yet something still more tangible was in store, preserved by the providential care of Him whose Word was called in question. The earth contained it, hidden in her dark bosom ; and she hath given back from her bosom the buried records of the past !*

When Wiseman lectured on this interesting theme, no human instrument had disturbed the ashes of Kouyunjik—no human heart conceived what were the wonders beneath its mound. *But Nineveh has arisen from the dust, and the ruins of the palace of Sennacherib have burst upon our view. They are ONLY ruins ; and yet the tongue of fire, the throes of convulsed nature,* and the iron hand of time, have spared what was necessary to corroborate the Word of the living God. Beneath the bodies of the gigantic human-headed bulls, that graced the en-*

* Layard (see "Nineveh and Babylon—the Results of a Second Expedition," Chapter IV.) conceives that some shock of nature must have assisted in the overthrow of that immense palace.

trance to that gorgeous palace, are inscribed, in letters still almost perfect, (though the colossal images are broken,) the records of that monarch's wars : and there we read that, in the first year of his reign, he went forth against "MERODACH-BALADAN," who had recently recovered Babylon, from which his father (Sargon, or Shalmanassar.) had expelled him ; and, totally defeating that king, marched upon the city of Babylon, from which he took a vast quantity of treasure.† Yes ! MERODACH-BALADAN, whose existence was supposed to be a dream ; whose name was affirmed to be an indelible blot upon the Scriptures, that proved them unauthentic ; whose deeds were too insignificant to appear in the annals of his own country, had yet his name recorded on the walls of the palace of his conqueror : and its stones have been faithful to their trust, and preserved, down to the present age, this un-mistakeable evidence that the Holy Scriptures are correct, even where they appear to contradict themselves, and occupy a position utterly at variance with what has long been called authentic history !*

417. And now, having separately viewed the chief forms of evidence by which God, in His wisdom and goodness, has condescended to substantiate the Book of Revelation, I will just glance at the power, wisdom, and goodness displayed in their *collective* ordination. As in the heavens around us the planetary orbs attract each other, altering their motions, and need compensating attractions to save them from destruction,—and as the wisdom of the Creator is manifest in preserving an equilibrium among the varied forces of the Universe,—so, here, one form of evidence has a necessary counter-influence on another, and the power, wisdom, and goodness of a Deity are necessary to their harmonious working. For such a combination of evidences, God required human co-operation without interfering with human freedom. To perform a miracle, unless for some wise and gracious end, might only be an exhibition of *power*. But to carry on a long series of miracles from age to age, of prophecies, and their fulfilment by beings who were not aware of the interest they had in them, or of the aid they lent

* The name of Sargon (also disputed) was likewise disclosed, after ages of doubt, by the fall of a bit of plaster.

† See Layard's "Second Expedition," Chapter IV.

them, and who yet were free to act or resist—to have foreseen, under such circumstances, the precise manner of their accomplishment, and to have foretold them so plainly as to render the accomplishment patent to the senses, and yet not so plainly as to enable unwilling actors to resist and defeat His foreseen purpose; and to have guided and overruled all these things for a noble and beneficent purpose,—the restoration of fallen man to happiness and joy,—these give evidence of the same *wisdom* that sustains and guides the whole fabric of creation; of the same *goodness* that, out of the abundance of its love, satisfieth the desire of every living thing.

CHAPTER XVII.

THE POWER, WISDOM, AND GOODNESS OF GOD, AS EXHIBITED IN THE SYSTEM OF RELIGION WHICH FORMS THE SUBSTANCE OF REVELATION, AND REMOVES THE MORAL DIFFICULTIES OF THE WORLD; AND ALSO IN THE PREMONITIONS OF PHILOSOPHY, WHICH EXHIBIT THE CONGRUITY OF THE HUMAN MIND THERETO—THE TRI-UNITY OF DEITY—THE CHRISTHOOD, OR HEADSHIP, OF THE MATERIAL CREATION—MAN'S DEPRAVITY AND RESTORATION TO HOLINESS AND GOD—THE WORK OF REDEMPTION THE GREATEST POSSIBLE DISPLAY OF DIVINE WISDOM AND GOODNESS; WHICH ARE FURTHER MANIFESTED IN THE MEANS INSTITUTED FOR RENDERING THAT WORK EFFECTUAL.

418. PHYSICAL Science has an elder sister—one whose views are less clear, and whose tendencies are less practical than her own; but who has ever sought, and still seeks, equally with her, to penetrate into the hidden mysteries of nature. Her name is Love-of-wisdom, or Philosophy. Science is contented to investigate facts—the facts of the physical Universe; and, tracing effects to proximate or secondary causes, to draw therefrom inferences and deductions more or less sound and clear.

Philosophy has always sought a higher and a bolder flight. Unsatisfied with second causes, she has attempted to rise to a first or final one. Unsatisfied with the investigation solely of things seen and tangible, or with what can be positively known, she has constantly endeavoured to penetrate into the unknown. From the investigation, not of physics only, but of mental and moral phenomena, she has essayed to deduce, or make evident by inference, certain abstract truths, which physical Science left as beyond her reach.

419. Reasoning from effects to causes, Philosophy early discovered that there must be some Power or Powers beyond the visible material Universe, adequate to call that Universe into being, and sustain it when thus brought into existence.

420. With much toil and labour, oppressed by difficulties which sometimes appeared insurmountable, she then found her way through the Theoi, or gods of popular superstition, to the doctrine of a Theos, or the essential unity of Deity.

421. Looking still upward, she surmised that, as the perfection of being must be unity and distinctness combined, there would probably be found a plurality of modes of existence—which she termed distinct hypostases—in the One Divine Essence.

422. Still pursuing her daring flight, through regions too dazzling for her mortal gaze, she saw, or fancied she could see, that, as every volition of Deity (if His perfections be exercised according to their nature) must be immense, eternal, and immutable—God, in creating a finite Universe, however vast, must have stooped from His infinitude. And following further this high train of thought, Philosophy beheld, or fancied she beheld, a necessity not only for distinct hypostases in Deity, but that one of these hypostases, thus stooping, should become the manifest and manifesting God—the Monarch of creation.

423. Dazzled and blinded by excess of light, the ineffable labyrinths of which she found too bright for her to thread,—having seen, or thought she had discovered, these principles or doctrines connected with a final cause,—she sank to earth again; and, erecting an altar to the “unknown God,” declared the necessity of Revelation. At the same time, in the dreamy reveries of her mental trance, she expressed a conviction, that,

if such a Revelation were given, it would recognize, or account for, certain facts in the physical Universe beyond the reach of Science; as, for instance, the existence of moral evil, and the coëxistence of an internal conscience, and an unconquerable instinct of worship, with darkness and blindness in the human mind.

424. To some of these doctrines and expectations Philosophy gave clear and distinct enunciation. Among these, were the Tri-unity of Deity and the necessity of Revelation.* Others, as the doctrine of a Christhood, or Headship of creation, though they have found no distinct embodiment in language, were breathed forth in the idolatrous nations, and the longing desires of the soul, which demand an object of worship nearer and more apprehensible than an infinite abstraction—one to which her affections could flow forth, and in which her hopes could centre.

425. A Revelation given might, or might not, accord with the deductions of Philosophy; because the hidden truths concerning Deity might, or might not, transcend the utmost powers of human intellect. If there were in no respect such accordance to be found, it would only manifest that man, unaided, could not attain to *any* knowledge of his God. If there were an accordance on any one point, it would manifest the wisdom, power, and goodness of the Deity, in continuing to man, amidst his moral darkness, sufficient light to find his way to some little knowledge of the truth. But if, on many and on most essential points, such analogy, or resemblance, were found to exist, it would evidence still more the wisdom

* The Tri-unity of Plato and his disciples is too well known to need pointing out; but the earlier declarations of Zoroaster (the *first* Philosopher of that name) are nearly as clear. He says: "The paternal Monad amplifies itself and generates a Duality, which sits by the Monad, and shining forth with intellectual beams, rules over all things: for Deity in Triad shines throughout the world, of which a Monad is the head." On the necessity of Revelation thus said Plato: "We cannot know of ourselves what petition will be pleasing to God, or what worship we should pay to Him; but it is necessary that a law-giver should be sent from heaven to instruct us." And thus also testified Socrates: "We must of necessity wait till some one from Him who careth for us shall come and instruct us how we ought to behave towards God and man."

and beneficence of that glorious and almighty Being, who, preserving a oneness through all His works, ordained such a congruity between the mind and truth, that the mind should see truth, as it were, in dim reflected shadow—that its deductions should be like a vision of some far-away reality, a nebulous or hazy testimony to something more resplendent, which the telescope of Revelation was ere long to make manifest to the world.

426. It will at once be obvious to all who have studied, or even glanced at, the Philosophies of old, that such a congruity *does* exist. Christianity teaches that Jehovah our Elohim, three Persons in one Essence, existing from eternity, did, “in the beginning,” *create* the heavens and the earth. It teaches that one of these persons especially, the Word—the Logos—the active Agent in creation-work, is the manifest and manifesting God, by whom, and through whom, and for whom, all things *were* made. It teaches that He is the anointed King of the Universe, the Mediator between the creature and the Deity, to whom, and through whom, unto the Father, the adoration of all must ascend. It points out the origin of moral Evil, in the abused liberty of the responsible creature; declaring that God made man good, but, falling by disobedience from the light and righteousness in which he was created, he has become involved at once in mental and in moral darkness. And it points out further, what Philosophy never could have discovered, a mode of recovery from this state of degradation and ruin, by which his darkness is dispelled, and his conscience set at rest—a mode, too, in which the demands of his instinct of worship for an apprehensible and manifested God meet with the answer they require, in the more complete manifestation of God’s moral attributes, and a perfect transcript of His paternal character.

427. Not that the Christian system could in any way have been the product of Philosophy, “a sort of refinement superinduced both upon Grecian Theism and Judaism, a sort of distillation concocted from the best properties of the previous systems.” Its origin is a proof that it did not arise from these. It proceeded, not from the schools of learning, but from an obscure corner of despised Judea, and from One who was to

all outward appearance a still more obscure mechanic—the Son of a carpenter. It stood upon His sole authority; and yet, confessedly, transcended “in truth, wisdom, and comprehension, in the sublimity of a clear and all-penetrating philosophy, in the characteristics of a minute and universal adaptation to mankind, and, above all, in pure benevolence and exalted goodness, every conception, every imagination, of the most eminent and revered sages the world had ever seen.” *

* Redford’s “Scripture Verified,” p. 342.

M. Dacier has given the following summary of the doctrines of Socrates, as derived from the works of Plato, quoted in Foxton’s “Popular Christianity:”—

“That there is but one God; that we ought to love and serve Him, and endeavour to resemble Him in holiness and righteousness; that this God rewards humility, and punishes pride.

“That the true happiness of man consists in being united to God, and his only misery in being separated from Him.

“That the soul is mere darkness, unless illuminated by God; that men are incapable even of praying well, unless God teaches them that prayer which alone can be useful to them.

“That there is nothing solid and substantial but piety; that this is the source of virtues, and that it is the gift of God.

“That it is better to die than to sin.

“That we ought to be continually learning to die, and yet to endure life in obedience to God.

“That it is a crime to hurt our enemies, and to revenge ourselves for the injuries we have received.

“That it is better to suffer wrong than to do it.

“That God is the sole cause of good, and cannot be the cause of evil, which always proceeds from our disobedience, and the ill use we make of our liberty.

“That self-love produces that discord and division which reigns among men, and is the cause of their sins; that the love of our neighbours, which proceeds from the love of God as its principle, produces that sacred union which makes families, republics, and kingdoms happy.

“That the world is nothing but corruption; that we ought to fly from it, and join ourselves to God, who alone is health and life; and that while we live in this world we are surrounded by enemies, and have a continual combat to endure, which requires on our part resistance without intermission; and that we cannot conquer unless God or angels come to our help.

“That the WORD (*Λογος*) formed the world, and rendered it visible; that the knowledge of the *Word* makes us live very happily here below, and that thereby we obtain felicity after death.

“That the soul is immortal; that the dead shall rise again; that there shall

428. A Revelation might be made to a fallen creature suited to the condition of the unfallen—a Revelation of the truth concerning Deity as He exists in Himself; and, also, as He exists in relation to His creatures, as Creator and Provider, naturally demanding from them, as the Being by whom, and in whom, they exist, a perfect service, and all the glory their feeble powers could give; but leaving the creature to darkness and conjecture as to all besides. And such a Revelation, while as much as could be expected by a race which had cast off allegiance to its Maker, might be considered as displaying the wisdom and justice of the Divine Being, in thus letting them know what was their bounden duty, though they were unable to perform it; and thus leaving them without excuse, when His judgments are proclaimed—"that every mouth might be stopped, and all the world become guilty before God."

429. Such a Revelation might, further, have intimated what penalties must, as a necessary condition, follow the non-fulfilment of such perfect service. In this case, the wisdom and the justice would appear more clearly; while the fairer attribute of goodness would shine forth in such a Revelation, because it would be calculated to deter the creature, by such an enlightenment of his conscience, from the commission of sins by which his after-condemnation would be increased.

430. A Revelation might, also, make known to the fallen creature his utter ruin and degradation, and the impossibility, in consequence of innate depravity, of his performing such service as his Creator, by virtue of Creatorship, demanded.

be a final judgment, both of the righteous and the wicked, when men shall only appear with their virtues and vices, which shall be the occasion of their eternal happiness or misery."

The object of both writers (Dacier and Foxton) is tolerably transparent. But, although so nicely arranged to make the Socratic philosophy appear as much like Christianity as possible, and though no such a word as angels (*Ἀγγέλοι*) could possibly be used by a merely Greek Philosopher, I willingly quote the summary as given. Even had it been literally copied from Plato, it would only show the congruity between the human mind and truth, in that reason should thus discover, without direct Revelation, so much of *Christian* ethics, though she could find no clue to its two foundation doctrines—redemption and justification by faith.

And here the wisdom and the goodness would shine forth more abundantly, inasmuch as such a knowledge would not only have all the conservative effects of the Revelations previously suggested; but, shutting up every avenue of hope from self-redemption, would deter the lapsed one, if he listened to its voice, from the adoption of cruel, unmeaning, ineffectual, and debasing rites, such as have long been prevalent under the sway of unenlightened conscience in the heathen world: and lay him, as a humble and contrite penitent, at the footstool of the Power Supreme, beseeching, if in any way it be possible, the bestowment of mercy and forgiveness.

431. More manifest, and more glorious, however, would the wisdom and goodness of Deity appear, if, in addition to these truths, such a Revelation taught also the possibility of a reconciliation with God; and pointed out the way in which it should be made: for such a Revelation could spring *only* from the abounding wisdom and goodness of Him who might justly have withheld altogether, from His apostate creatures, the knowledge of His purposes and His will.

432. And such a Revelation have we in that Book which God, in His rich mercy, has bestowed upon us—a Revelation perfect and consistent in itself, though given at vast intervals of time, and through the medium of minds of varied rank and order—a Revelation agreeable to all the clear deductions of genuine Philosophy, and the ascertained facts of the Physical Universe—a Revelation exactly adapted to the fallen condition of the being for whom it is intended, and calculated by its innate power, as well as the means by which it is accompanied, to raise him from any condition of induced degradation, to one of comparative purity and peace, of virtue, and of happiness.

433. Exception has indeed been taken to various typical* and shadowy rites of the Levitical Law, as appearing very unlikely to be the subject matter of a communication from the

* The use of types, which some have objected to as derogatory to a Supreme Being, is really another evidence of the "family likeness" between God's Word and works. The earliest vertebrate animal, created thousands, perhaps millions of years ago, was a foreshadowing or "type" of man. See note to Section 260.

Deity. But due consideration should be given to the circumstances of the time. With minds so fallen and degraded as to be incapable of attaining even to the least conception of the abstract purity or holiness of God, it is necessary for the inculcation of such a doctrine, that means should be taken to induce and carry home such a conviction. And this is the more important, inasmuch as on it rests, as upon its proper base, man's conviction of his own sinfulness, and the necessity of some kind of restoration. Yet, there was no object in the material Universe that could meet the eye of man, to which God's purity or holiness could be compared, or by which it could even be illustrated. And, perhaps, as a consequence of this, there has been no original word found in any language conveying the abstract idea of purity or holiness.* How, then, was such an idea to be originally conveyed to the fallen mind, except by means of rites and ceremonial observances, such as those which were instituted in the Levitical Law?

434. But man needed not only to be acquainted with the purity of Deity; but to be made sensibly acquainted with his own innate depravity, and the necessity of an atonement, before he could approach the footstool of his Maker. Hence the ordination of expiatory sacrifices, all pointing to the one vicarious Sacrifice to be offered on Calvary for the sins of the world. Thus, rite after rite, and observance after observance, was established; and new light was vouchsafed as rapidly as the human mind was opened to receive it; until, at length, for the establishment of the elder Revelations by the fulfilment of their prophecies, and for the further Revelation of the will and purposes of Deity to man through the appropriate instrumentality of a human life, heaven's light embodied moved upon the earth in the person of the INCARNATE WORD. In Him "dwelt all the fulness of the Godhead bodily." By His miracles, His teaching, and His holy and blameless life, not only the purity, but the power, wisdom, and goodness, and the pa-

* See a small but valuable work by Walker, "The Philosophy of the Plan of Salvation." Our own word "pure" is derived from *πυρ*, *fire*: fire being the medium of purifying metals. Our "holy" is derived through the Hebrew and Greek, from the Levitical services.

ternal character of God, are more adequately made known to those who had wandered from His presence; and, by His sacrificial death, as a substitutory offering for sin, a way of access is opened for fallen and sinful creatures, to a God of purity. The Gospel message, therefore, is not merely a declaration of God's reconciliation to man, a message which itself might well fill earth with marvelling admiration at His surpassing goodness; but—oh! marvel of marvels! oh! deeper depths of condescension on the part of Him we have offended!—the messengers of glad tidings are sent forth, beseeching men, as in Christ's stead, "*Be ye reconciled to God.*"

435. The whole life of Christ may be considered as a manifestation of Deity. In His every uttered sentiment some Revelation of the nature and character of God may be discerned. And in His marvellous acts—the mighty "signs and wonders," which attested His power over the elements of the physical Universe—there was ever beaming forth the goodness of the Infinite to His suffering and dependent creatures.

436. This is evident, if we only consider Him as a human being—a Prophet of the Highest, endowed with a supernatural power for the confirmation of the doctrines He was sent forth into the world to teach.

But, when we lift the veil of His humanity, and see in this "Brother born for adversity," this houseless Sojourner upon earth's surface, another and a mightier Being,—the Creator of the world upon whose face He wandered,—the Maker of the creatures who despised and rejected Him,—who voluntarily left the throne of His glory to seek the lost wanderer, and restore him to holiness and life, how marvellous, *then*, appears that act of condescension, of fatherly kindness, of unutterable love!

437. HE hangs upon the breast of Mary as a helpless babe, who spake the material Universe into being by the word of His power! HE fed by miracle the hungering thousands that listened to His doctrine, whose supply of their daily necessities, by the ordinary processes of nature, had a thousand times previously demanded their gratitude, and demanded it in vain! HE healed the diseases and sufferings of the people, though against Him they had sinned, and by sin brought those

sufferings on themselves; HE endured thirst, and hunger, and privation, who "openeth His hand and satisfieth the desire of all things living!" HE endured the contradiction of sinners against himself, who, to remove that contradiction, was come to stoop and suffer, to exchange His glory for humility, His all-sufficiency for poverty, His crown for a wreath of thorns! HE sojourned upon earth as a Friend and Companion of mankind,—HE against whom mankind had sinned, and whom mankind persisted in rejecting, even though His mission was to offer up His own life as a ransom for theirs!

438. And mark the consummation of His sufferings and His sorrows! HE weeps in whose smile the Universe rejoices! HE groans in sorrow who hath the resources of the Universe at His command! HE sweats great drops of blood, in the agony of His soul, to whom angels minister, and by whom, and for whose pleasure, all finite things were made! HE bends beneath the weight of human sin whose arm supports the fabric of creation, and who upholdeth all things by the word of His power! HE is arraigned—condemned—before a Roman Prætor's bar!—HE who is the Righteous Judge of all, and to whom all must give an account of their deeds whether they be good or whether they be bad. HE dies, whose Godhead is the Fountain-Source of Life, from whom life emanates, in whom life centres—and dies, that to the dark chambers of the grave He may let in light and immortality, and bring back death to life! Well may the enraptured Poet exclaim, in reference to that crowning act of Infinite goodness—

Amazing scene! well might the sun, abash'd,
Hide his bright face in darkness! well might earth
Shake to her centre! well the rending rocks
Speak out their wonder; and convulsions tear
The universal frame! Oh, love divine!
Oh, miracle of love! oh, love of God!
How vast, how wondrous, passing human thought!

* * * *

Had universal nature backward slunk
Into the barren womb of nothingness;
Had light turn'd darkness, matter chaos wild,
And order rank confusion, it were nought
To that stupendous scene, where God in flesh
Died for the creature's sin!

439. It is impossible to conceive of anything else so calculated to exhibit to an astonished Universe the love, the goodness, of God, as this act of vicarious self-devotion on behalf of the creature, who must otherwise, by the inexorable demand of His immutable attributes, be lost for ever. But this is only a part of the display. Nothing can be so calculated as this exhibition of love, this opening up of the depths of the fatherly heart of Deity, to win back the ruined one from the sin he has delighted in, to the bosom of the God he has offended. In the lowest depths of his abasement, in the blackest darkness of his moral night, let that exhibition only gain an entrance into his soul, let him see it and believe, and the whole man is changed, and from a daring rebel he becomes a humble penitent, a glorifying servant of the Highest.

440. And He who thus far condescended to fallen man's necessities, left not the work incomplete; but appointed means well adapted to attain the results designed, in the institution of commemorative rites, and the preaching of the Gospel of salvation, accompanied by the energy of His communicable Spirit, to apply that preaching and those rites to the heart.

441. Such, then, is the system of religion which the Revelation of the Lord Jesus made known; and such are the means which Divine power, wisdom, and goodness have ordained for the restoration of mankind to the forfeited favour of the Deity, and the eradication of the evil in which man's defection had involved him. Those means have proved themselves all-powerful, wherever they have been brought into operation; and are, therefore, well calculated to attain the end designed. By them has the earth already received a partial renovation; for not only are multitudes of believers brought home to the God they had forsaken, but the whole moral aspect of society is changed—the abodes of darkness and habitations of cruelty fleeing before the moral beams which shine luminously upon them. Before their all-conquering and assimilating energy, the powers of hell are falling, and are destined still to fall, until a lost world be finally recovered, and the multitudinous voices of earth shall re-awake the key-note of the Universe—"Hallelujah! for the Lord God Omnipotent reigneth!"

CHAPTER XVIII.

“SCIENTIFIC” DIFFICULTIES AND OBJECTIONS CONCERNING THE FACTS OF REVELATION MET AND OBIATED—ANALOGY BETWEEN THE WRITTEN AND THE ACTED REVELATION—GOD’S WORD AND WORKS—CONSIDERATION OF THE OBJECTION “THAT THE MOSAIC HISTORY OF THE CREATION IS INCOMPATIBLE WITH THE KNOWN FACTS OF SCIENCE.”

442. SUNRISE! How many and how various are the thoughts which that one word excites. The child awaking from its rosy sleep, laughs in the beams of the new-kindled glory, and declares that God hath made it light. The watching invalid, whose frame is tormented with a sleepless *ennui*, or with rack-ing pain, and whose eyes have turned wistfully, again and again, to the window, with a murmured exclamation, “Would God it were morning!” feels some degree of refreshment at the sight of its radiance, while his heart is tuned to patience by the songs of the birds that hail its reviving advent. The stalwart man, awakened by the shout, “the sun is up!” rises to pursue his wonted labour. The lorn, lost wanderer, over whose uncertain path night hung its shadows of disquietude, hails the ascending luminary, while hope, re-awakened, urges him to fresh and strenuous exertion. The Poet’s eye, wandering delighted over earth and heaven, tracks the bright course of light’s scintillations, and watches their effects upon animate and inanimate creation. The glorious clouds, the rising mists, the gradually receding darkness, fill his mind with visions of ecstatic beauty,

“So sweet the smile of nature seems,
Just waking from her midnight dreams;”

while his heart sends forth a rhythmic tribute of thankfulness, responsive to the melodies of the insect and the feathered tribes. The man of science gazes on the scene with the same human eyes. He, like the rest, beholds the sun *ascend*; and as he watches the effect, upon the earth and atmosphere, of

the newly-awakened and increasing light, seldom will his correcter thoughts dispel entirely the illusion which deceives the sight : nay, so prone are we to regard things as they *appear*, rather than as they really *are*, that the man who should attempt such a reformation in language, as would be involved in changing the ordinary expression into a declaration that our hemisphere has turned to meet the sun, would be scouted as a pedant, or laughed at as a fool. How absurd, then, the Infidel objection to the Scriptures, that they speak of ordinary, or extraordinary, occurrences, in the current language of mankind !

443. Whatever may be our views of Revelation, *per se*, there are certain principles which must necessarily be connected with it to make it a Revelation at all. First, it must be made in the language of those to whom it is primarily addressed, or there would be no guarantee for its meaning ; and, perhaps, it might never be correctly understood by any one ; since he through whom it was made would have to interpret the “unknown tongue” into the common language of the people. Secondly, it must give the ideas intended to be conveyed in such modes of thought as would be comprehensible by the people to whom it was addressed. The condescending act of Revelation would but half serve its purpose, without such a further condescension. He who declared God’s message to the world, would otherwise be as a “babbling” of things which its inhabitants could not understand. So far, then, if a Revelation be given at all, it is most natural to conceive that the Divine Being who gave it would deign to condescend.

444. There are analogies at all points between God’s acted and written Revelation—His works and His word ; and, from the different ideas awakened by the phenomena of sunrise, we may obtain illustrations of the different views entertained of the Creation detailed in the earlier portion of the book of Genesis. The plain and simple-minded man takes his impression from the first phenomena exactly as they appear, and does not trouble himself to understand their nature, being satisfied with receiving the benefit they bring. The same class of individuals, in reading the records of Creation, take them in their simple literal sense, and heed not the un-

derstanding of scientific facts, or critical exegesis; satisfied with the knowledge of the one great fact—that the God who has revealed Himself as *their Father*, is the Creator of all things. The man of poetic temperament views both rather in connection with the grand and beautiful ideas they awaken. The man of science, on the other hand, who searches into the more correct explanation of the phenomena *denominated* sunrise, sees, in the history of Creation, as well as in the division of light and darkness, which are caused by the daily rotation of the earth, a further and a deeper meaning than that which appears upon the surface. Yet all alike are partakers of the benefits of light, and all alike may learn the lesson of dependence upon God their Creator, which the simple narrative in Genesis is calculated, and was *intended*, to convey.

445. The objection may, indeed, be urged, that, amidst the variety of written opinions respecting the precise meaning of certain passages, all is little better than surmise, and we know not whether a correct interpretation has ever yet been given. And is there no analogy here between the acted and the written Revelation? Look forth at the beams of day's bright luminary, and tell what are they? We give them the name of light, but who can tell exactly of their nature? Everything here, also, is little better than surmise; and we know not whether a correct interpretation of the phenomena has ever yet been given. One views it as an irradiation of matter, and not itself material. Another takes it to be matter emanating from an incandescent body. A third considers it as the effect of the undulations of a luminiferous ether, which fills all space, and is excited by the presence of the sun. A fourth conceives it simply the effect of electric action, excited by the luminous atmosphere of the sun: and a fifth, as the simple principle of *motion*.

446. These different ideas being still entertained of light,—though one is more prevalent than the rest,—show that there is at least the same uncertainty about the precise meaning of God's acted as His written Revelation. If we cannot attain to certainty in the one case, neither can we in the other. And, as in the one case, all may partake of the blessing, though they cannot understand the phenomena by which it is imparted; so all alike, civilized and barbarous, learned and illiterate, may be

taught, by the Mosaic assertion of the doctrine of Creation, the great moral lesson of dependence upon God for all things; though none, perhaps, may know the precise and particular meaning of all the words in which it is conveyed: * while the blessings with which word and works at once are redolent, are equally adapted to the rudest and most polished condition of society; while, also, the development of scientific light, or a better knowledge of God's works, is constantly accompanied by the development of a better knowledge of the meaning of His word; and both are analogous to the gradual development of His plans and purposes in the course of Providence, as given in the written Revelation.

447. Moreover, no man can have observed much of the workings of the human mind, who has not seen how much more readily it opens for the reception of moral truths when they seem to accord with his own pre-conceived notions of physical phenomena. It is natural, then, to conclude, that a Being of infinite power, wisdom, and goodness, to whom "all hearts are open, and all desires known," when conveying His moral lessons to His creatures, would, as far as consistent with eternal and immutable truth, so adapt His descriptions of physical phenomena, as not to cause any unnecessary revulsion of feeling by awakening needless prejudices; and not to demand a greater development of intellect to apprehend them, than is consistent with the foreseen condition of the vast majority of mankind.†

* "It is not at all incredible that a Book which has been so long in the possession of mankind, should yet contain many truths yet undiscovered. For all the same phenomena, and the same faculties of investigation, from which such great discoveries in natural knowledge have been made in the present and last age, were equally in the possession of mankind several thousand years before. And possibly it might be intended, that events, as they come to pass, should open and ascertain the meaning of several parts of Scripture."—*Bishop Butler*.

† "We Astronomers do not pursue this science with the design of altering common language; but we wish to open the gates of truth, without at all affecting the vulgar modes of speech. We say with the common people,—the planets stand still or go down, the sun rises and sets meaning only that so the thing appears to us, although it is not truly so, as all Astronomers are agreed. How much less should we require that the Scriptures of Divine Inspiration, setting aside the common modes of speech, should shape their words

448. Whatever the *intention* might have been, such we find to be the simple *fact*, with regard to the earliest portion of the Book of Genesis. The ancient tent-dweller in Mesopotamia and Arabia might probably see in the "waste and desolate" (THOHU VA-VOHU) condition of the earth prior to the six days' creation, only an intenser development of phenomena which he or his fathers had witnessed, when, in consequence of some long time of drought, or the violence of the simoom or sirocco, vegetation died, the earth became desert and void, and desolation reigned supreme. The more philosophical Greek found in the same description a realization of his own ideas of chaos, with which he impregnated the minds of his successors, from the days of the early Platonic Christians to the days of our own "fathers," who built thereon various systems of cosmogony: while the man of science of the present day brings back the meaning of the terms nearer to the original notions of the primitive races.

449. Thus, also, in the "spreading out," or "expansion," (RAKIHA,) the nomadic tribes, literalizing the beautiful idea of the inspired Poet, might see the heavens "spread abroad as a tent to dwell in," while the Greek saw in it his more substantial, perhaps metallic "firmament;"* and the modern Philosopher, in more accurate consistency with the original meaning of the term, sees only a "spreading out," to a greater altitude, of those dark dense vapours which then obscured the face of the earth; or the "expansion," into a gaseous form, of elements then existing in a liquid or more solid state, giving birth, or *new* birth, to that beautiful transparent atmosphere, which serves so many purposes of utility and benevolence.

according to the model of the natural sciences, and by applying a dark and inappropriate phraseology, about things which surpass the comprehensions of those whom it designs to instruct, perplex the simple people of God, and thus obstruct its own way towards the attainment of the far more exalted end at which it aims."—*Kepler*.

* Some writers, among whom was the late Dr J. P. Smith, contend that the original word RAKIHA implies some such meaning as the beating out of metallic plates, because it is rendered "σπρεωμα" (firmamentum) in the Septuagint: but this is an implied demand that translations as well as the original text be inspired. The equivalents of RAKIHA in cognate languages seem to have no such *primary* signification.

450. Thus, also, from the declaration that man was formed "out of the dust of the earth," the less cultured races might gain the idea of a potter moulding his clay into the human form, while the man of science sees therein a declaration of the well-established truth, (but lately learned,) that the human frame is composed of those very gases, salts, and metallic bases, of which the solid earth consists.

451. Nor might it, perhaps, be too great a stretch of imagination to suppose, that, where God is represented as conversing with His tried and faithful servant, when He demands of him, "Canst thou bind the sweet influences of Pleiades, or loosen the bands of Orion?" the Philosopher might *correctly* conceive a higher and a larger meaning in the words, than that which could be grasped by the Patriarch of Uz; seeing, as he does, that the Pleiades—or CHIMAH,* which is the Hebrew word—are probably the common centre of our galaxy; and beholding in the band, or sword-belt, of Orion, a phantom-like, yet real vision, of another galaxy, or universe, shining on in the heavens far away.

452. "God's mouth," to use the quaint but expressive language of an old Puritan divine, "is larger than man's ear, and man cannot take in all at once the meaning of His words." The test of scientific research has been applied alike to all professed revelations, and all except the Bible have fallen before it. That Book, whose earliest portions were written in one of the rudest ages, among the rudest people, has never been shown to come into collision with any real discovery of Science, its few *apparent* collisions being merely a condescending adaptation of its language to the apprehension of the individuals whom it was destined to teach. If steadily pursuing the great *moral*† object for which it was given, it does not anti-

* "Chimah" literally means a hinge, or an axle, that turns round and moves other bodies along with it. How expressive a name for the centre of a galaxy!

† "It should be distinctly remembered that nowhere in Scripture is it intimated that there was any intention to convey to us therein any information on natural science, or afford, as a primary purpose, an insight into the operations of the material world."—Gray's "*Harmony of Scripture and Geology*," p. 22.

cipate scientific discovery, its language, when separated from mistaken glosses, is ever found adapted to those discoveries when they *are* made. The extension of human knowledge, though it starts fresh difficulties and new objections against the Mosaic narrative, speedily furnishes the means to remove them;* and thus, from every branch of knowledge, light is constantly arising to shed its beams upon the written Word, and show its truths more clearly. This alone would stamp it as of Divine original—as an emanation from Him by whom the Universe was formed. For such a view of the adaptation of words to the end designed, the teaching of the simple *moral* truth that man is dependent upon God, his Creator, for all things, seems but a natural coincidence with the adaptations we behold in the kingdoms of nature, wherever we cast our eyes abroad, over earth, or air, or ocean. It carries out, moreover, our views of the prescience of that Being who saw intimately the requirements of every state of society, from the beginning to the end. Yea, more, it naturally suggests the idea that, even supposing it were possible for our present views of physical phenomena to prove as unreal as those of former ages, the brief declarations of Genesis would be found to adapt themselves as well to all new discoveries that might be made, as they have done to any of the past,—God's Word and God's works thus going forward in parallel lines, continually illustrating each other, like suns upon each other shining, until the dawning of that brighter day when faith shall be lost in full fruition, and Revelation be absorbed in the bright and glorious vision of the MANIFESTED GOD.

453. This introduction may, perhaps, be thought a long one, considering the brevity which characterizes most portions of my Treatise; but I judged it expedient, as well as proper, to introduce a subject which has been seized upon by the Infidel as a means of unsettling the minds of thousands, by some pointed illustrations. Those illustrations I chose as well for the purpose of preparing the minds of many devout Christians to receive the simple facts of Science, as to obviate the cavils of the Sceptic; and I now proceed to notice in detail the most

* “Superficial geological investigations may lead the mind *from* the Holy Scriptures, but thorough investigations *lead it back*.”—*Dr Buckland*.

apparently substantial objections which have latterly been brought against the *facts* of Holy Scripture, and especially as directed against the Mosaic narrative. The moot points attached to the departments of Prophecy and Miracles, (all questions respecting which it *was* thought had been settled long ago,) will, as far as they are made matters of *new* objection by the "Rationalists" and "Spiritualists," &c., of our days, be noticed in a succeeding department. The objections founded on alleged discrepancies, which have been so sufficiently answered by Watson, Paley, and others, and so clearly shown by Professor Rogers to be evidences rather *for* than *against* the genuineness of the books containing them, must also meet with some little notice there, as they appear in the new form of a basis for "myth and allegory theories." These, however, the majority of professed Sceptics have now placed in abeyance, turning their attention to a different and more scientific class of objections, which must first occupy our attention. They may be ranged under six different heads:—

I.—That the Mosaic history of the six days' Creation is incompatible with the known facts of Science.

II.—That there is sufficient evidence of man having existed in the Tertiary period, long before the era of his recorded creation.

III.—That the production of the whole human race by one primeval pair, and its more modern unity in the family of Noah, cannot be made consistent with the known varieties of our species.

IV.—That death, as attested by geological discovery, reigned in the earth anterior to Adam's sin, and therefore could not be the product of that act of disobedience.

V.—That the universality of the Noachian deluge is irreconcilable with certain known facts.

VI.—That the anthropomorphic representations of Deity, constantly occurring in the Scriptures, are inconsistent with correct ideas of God's infinitude.

To each of these in their order.

454. The first main objection to be noticed is, "That the Mosaic history of the six days' Creation is incompatible with the known facts of Science."

455. The introductory observations I have made, will sufficiently attest that I would not contend for such an interpretation of the first portion of Holy Scripture, as would make the whole fabric of the Universe of no greater age than about six thousand years—an interpretation which I conceive to be quite as much at variance with the written Word, as it is with the disclosures of modern Science. For even if the particle *VAU* might be conceived of as uniting the second verse of Genesis to the first, as a closely consecutive period, such an opinion, founded thereon, ought to be modified by the fact, that there are passages in other portions of the Scriptures which unquestionably ascribe a much earlier date to the framework of the Universe, than to that image of his Maker who, in the last collocation of the earth, was created to have dominion over the works of His hands. What else mean such expressions as “*of old* Thou hast laid the foundations of the earth ;” or, “before the mountains were brought forth, or ever Thou hadst formed the earth and the sea, even from everlasting to everlasting Thou art God” ? Or why, when speaking of the councils of eternity, would the Apostle represent God as having “chosen us in Christ before the foundations of the world” ? To dogmatize, however, upon such a matter, would be quite out of place. Various interpretations have been given, by which, without doing the least violence to the original document, whatever violence may be done to long-prevalent opinions, the early portion of Genesis is shown to be fully consistent with all the known facts of Science. This is all that in such a case can be required. If the Scriptures had been given for the purpose of teaching even the rudiments of Science or natural philosophy, or if a knowledge of historical truths, or recondite facts, were anywhere in their pages spoken of as a means of salvation, or as influencing, in any degree, man’s destinies hereafter, then I would fully accord with the Hutchinsonian theory, that the germs of all true Science are contained in Revelation. Such, however, is not the case. Indeed, to use the powerful language of Professor Sedgwick, “Laws for the government of intellectual beings, and laws by which material things are held together, have not one common element to connect them. And to seek for an exposition of

the phenomena of the natural world among the records of the *moral* destinies of mankind, would be as unwise as to look for rules of moral government among the laws of chemical combination." The themes the sacred writers dwell upon sufficiently show that they were inspired for a different and a much higher purpose. All we can expect, then, is, that in their occasional allusions to scientific facts they should utter no falsehoods, should broach no positive errors, though they may not comprehend the meaning of what they utter—the prophets being represented by St Peter as "searching diligently" to know the meaning of the Spirit who imparted the impulse which gave utterance to their words.

456. As, however, in Geology, by diligent and continued investigation, a few facts seem to be irrefragably established; as, for instance, the regular super-position of various strata, and the regular occurrence in them of certain classes of remains: so, by philological and exegetical investigation, the correct interpretation of some parts of this earliest written record seems placed beyond a doubt.

457. First among these is the fact, that, in the first verse we have a general declaration that "in the beginning God created * the heavens and the earth;" with which the second and third verses have no necessarily consecutive or immediate connection. And what is this but a declaration to whose truth we have seen that the whole Universe testifies—that material things are not eternal, and sprang not themselves into existence, but are the production of "a Being all-powerful, wise, and good"?

458. The Hebrew particle *vau*, which connects the different branches of the Mosaic account of the Creation, and is translated into "and," in most modern versions of the Old Testa-

* To some minds, the declaration in the Fourth Commandment, that "*in six days the Lord made heaven and earth, the sea, and all that in them is,*" forms an insuperable objection to any theory of a greater antiquity for the earth than the Mosaic cosmogony. It ought, however, to be particularly noted, that there is an important change in the *term* used. In the first verse of Genesis, we have the word *BARA* (created),—here we have only *HASAH* (made, or constituted). The first, therefore, evidently refers to a bringing into existence, the other to a constituting out of existing materials, or a new collocation.

ment, does not show any necessary connection between the sentences it unites. It seems, indeed, to have been the first adjunct of the kind in any language; the primitive language or languages of mankind having been entirely destitute of particles, prepositions, conjunctions, or any of the accidents of speech.* What marvel, then, that this first advance upon primitive simplicity in written characters should be used in various senses, designating some kind of connection, where, before, it would have had to be wholly understood from the context, without any mark or sign of its existence. As remarked by Granville Penn, *VAU* "discharges the functions of all the conjunctions, both copulative and disjunctive,—its sense being determinable, in each particular case, only by the relation of the context, and the practice and genius of the language."† Thus it may be Englished by "but," or "afterwards," as well as by "and." Indeed, the elder Michaelis assigns to it thirty-seven different significations, and Noldius upwards of seventy.‡ Clearly, then, there *may* be a chasm of

* "Language, as appears from the nature of the thing, from the records of history, and from the remains of the most ancient languages yet remaining, was at first extremely rude, narrow, and equivocal; the art of enlarging language by a scientific analogy being a late invention."—*Warburton's "Divine Legation,"* Book IV. sec. 4.

"The languages of a more barbarous and less cultivated original, kept a nearer resemblance to the peculiar quality of the first tongue, and consist chiefly of short and simple words."—*Shuckford's "Connection,"* Vol. i. Book II.

"In some remote districts in Italy," "the idiom still spoken is described as absolutely destitute of prepositions, particles, inflexions, and all the accidents of speech."—*Forster's "One Primeval Language,"* Part II. p. 29.

I may add to these authorities the fact that the Chinese language presents us, even at the present day, with an example of this primitive simplicity. It has no particle whatever, the connecting sense having to be entirely understood from the context.

† The Greek "*ΚΑΙ*" is really but a very slight advance upon the Hebrew *VAU*, having to be rendered into various other words besides "and," according as the context indicates. Both, moreover, are sometimes used *merely* as an adjunct, at the commencement of a sentence or discourse, to mark some separation from what has immediately preceded; like the English words "now" and "well." In this sense it may probably have been used in the second verse of Genesis.

‡ The following meanings are given in Bagster's Analytical Hebrew and

indefinite ages between the first verse of Genesis and the second,—the sacred Historian in the one enunciating the simple doctrine that all things were created in the beginning by God; and in the second, (having passed over all intermediate periods,) proceeding to give a brief account of the state of the earth just prior to the creation of man and his contemporary races. This chasm will give “ample room and verge enough” for all the discoveries of either Astronomy or Geology. It will allow time enough, not only for the formation of the different strata beneath us, but also for the light of even the most distant visible nebulae to travel over the intervening space between the orbits of their suns and ours.

459. We proceed, then, to the second verse—“*The earth was without form and void, and darkness was upon the face of the deep.*” Perhaps, had we never become acquainted with the cosmogonies of the Greek and Latin Poets, the words “THOHU VA-VOHU” would never have originated in the English mind the idea of a chaos which the figurative description of our own great Bard, in his “Paradise Lost,” has tended greatly to encourage and extend. In the Septuagint version of the Scriptures, those words are rendered “invisible and unfurnished;” and might, perhaps, with equal closeness to the original, be rendered “waste and desert,” or “empty and desolate.”* The language used may thus only describe the state superinduced by one of those convulsions, many of which, according to the testimony of Geology, the earth *did* undergo, and it was necessary that it *should* undergo, before it could be properly prepared to become the habitation of mankind—convulsions which have furnished us with our limestone and our coal, our metallic ores and our arable soils. Indeed, the elaborate re-

Chaldee Lexicon—As a connective particle, the manner and nature of its connection is to be collected from the series of the discourse. Its principal uses are as follow:—1st, simply copulative, “and,” “also,” serving to connect words and phrases; 2nd, adversative, “but,” “yet,” “otherwise;” 3rd, “for,” “since,” “because;” 4th, eventual, “that;” 5th, final, “that;” 6th, concessive, “though;” 7th, “then;” 8th, exegetical, “even.”

* The Prophet Jeremiah (iv. 23) thus speaks of Jerusalem and Judah: “I beheld the earth, and, lo, it was *without form and void* (THOHU VA-VOHU); and the heavens, and they had no light.”

searches of M.M. Orbigny and Eli de Beaumont, which have been so admirably popularised by Dr Lardner, in his "Museum of Science and Art," show that immediately prior to the human period, the earth did pass through the greatest convulsion through which it had *ever* passed. That convulsion, according to the testimony of the uplifted strata at their base, threw up four of our largest mountain-ranges—the principal Alps, the Himalayas, the Chilian Andes, and the mountain-regions of Persia and Cabul. The necessary effect of such a convulsion must have been to induce just such a state of things as Moses describes—darkening the atmosphere, and rendering the earth "waste and desolate."* Nor does the Hebrew word rendered "darkness" necessarily mean a total privation of light, but is often used in relation to circumstances of partial darkness. Indeed, in the opinion of one whose scholastic attainments and Christian character are far above suspicion,—Dr J. P. Smith,—the words *may* have a more restricted meaning than I feel inclined to allow, or the demands of Geology call for. He conceives that the word rendered "earth" may not in this place—as the same word certainly does not in many others—mean the whole surface of our planet, but a *portion* of its surface only, a separate district or centre of Creation, "in which a newly-formed creature should be the object of those manifestations of the authority and grace of the Most High, which shall to eternity show forth His perfections, above all other methods of their display."†

* Something analogous to such a state, and not on a very limited scale, has occurred during the past century. "The eruption of Skaptar," [in Iceland,] says Mrs Somerville, "which broke out on the 8th of May, 1783, and continued till August, is one of the most dreadful recorded. The sun was hid many days by dense clouds of vapour, which extended to England and Holland, and the quantity of matter thrown out in this eruption was computed at fifty or sixty thousand of cubic yards. Some rivers were heated to ebullition, others dried up: the condensed vapour fell in snow and torrents of rain; the country was laid waste; famine and disease ensued; and in the course of the two succeeding years 1300 people, and 150,000 sheep and horses perished. The scene of horror was closed by a dreadful earthquake."—"Physical Geography," vol. i. chap. 13.

† Smith's "Relation between the Holy Scriptures and some parts of Geological Science," 4th edit. p. 198.

460. "*And God said, Let there be light,*" &c. A late writer, Mr A. T. Ritchie, considers that command as the one which first called light, or the principle of expansion, into being; and endeavours to show how, chiefly by its means as a secondary agent, the work of the second and third day's Creation was carried on, before that principle was fixed in the sun, whose body had hitherto been only the centre of attraction. There is a sort of *a priori* objection to this view, in the fact that fossils of animals are dug out of the limestone and other rocks, which evidently had eyes; and it is a natural conclusion that eyes were given to *see*. If we grant, however, the possibility that light had not visited *the earth* before that time, it was still quite impossible that it had not previously visited the Universe; for, leaving out of the question those distant nebulae which are only to be discerned by telescopes of immense space-penetrating power, there are nebulae whose light can be seen with the naked eye, and whose distance is such that it would take that light some thirty or forty thousand years to travel over it. This, to my mind, settles the question. Nor does there seem any need of such hypotheses to reconcile the facts of Science with the words of Genesis themselves, divested of the interpretation which man has attached to them.* It has been a matter of *frequent* remark, that, instead of the word BARA, "create," which is used in the first verse of Genesis, the word YEHI is here used. There may, however, be a more important reason for this change of terms than I have yet seen noticed by any one. Man, in his ignorance, has been wont, for thousands of years, to speak of light as being "made," or "created." But if our present views of the nature of light are correct, such terms could not properly be applicable. And it is another striking instance of the strict scientific propriety of the wording of Genesis, that neither of these words *is* used. Instead of BARA, or HASAH, we have YEHI, signifying, "let be," or, "let be seen." This seems to imply that light was not then

* "We cannot stand by these defences of Scripture, but we can stand by Scripture itself. Why is it so? Why is the alleged folly of Revelation more tenable than the wisdom of its advocates? The most easy and natural explanation is, that "all Scripture is given by inspiration of God."—*King's "Geology and Religion."*

first "created," or even called into exercise; but that its influence was brought to the scene of operations, either by the diurnal rotation of the earth, or by the irradiation of the dark and turbid atmosphere,* which, as the effect of some previous convulsion, had been rendered impervious to its rays. This view will fully accord either with the idea generally entertained, that the whole earth was the subject of the Mosaic cosmogony, or with Dr John Pye Smith's more limited acceptance of the term "earth."

461. "*Let there be a firmament,*" or "*expansion,*" &c., and "*let it divide the waters from the waters.*" Deep and occult meanings have been attached to these words, by those who have contended for the germs of all true Science being contained in the history of the six days' Creation; and they have shown pretty clearly, that either he who wrote, or He who indited the words, was well acquainted with principles which modern chemical Science has elicited. Yet the words, though they *may* have been the evoking of an atmosphere, *may* simply have been a command that the watery vapours which obscured an atmosphere at that time far from pellucid, should ascend to a great altitude from the earth.†

462. "*Let the waters under the heaven be gathered unto one*

* Humboldt, in speaking of the "unastronomical sky of Peru, ("Cosmos," vol. iii. p. 87,) says, "According to the conjectures which modern Geology leads us to form respecting the ancient history of our atmosphere, its primitive state, in respect to composition and density, must have been *but little favourable to the passage of light*. If, then, we think of the many processes which may have been in operation in the early state of the crust of the globe, in the separation of solid, liquid, and gaseous substances, we are impressed with a view of how possible it must have been, that we should have been subjected to conditions and circumstances very different from those which we actually enjoy. We might have been surrounded by an untransparent atmosphere, which, while but little unfavourable to the growth of several kinds of vegetation, would have veiled from us the whole starry firmament."

† The *exact* propriety of the words is peculiarly manifest, if we consider that this command was given before the dry land had appeared; since the expansion of a dark, dense atmosphere, sufficiently charged with watery vapour to obscure the orbs of heaven, an expansion which would cause a portion of that vapour to fall upon the surface of the sea-covered earth, and another portion to fly off into the upper regions, and rest there in dense clouds, which still rendered the sun invisible, would literally "divide the waters from the waters."

place, and let the dry [land] appear." This was evidently a command for upheaval or degradation, or both—processes to which Geology testifies that the earth has been frequently subjected, in pre-Adamic periods, and which history also tells us have, in later ages, been carried on, though upon a far less extensive scale.

463. "*Let there be lights in the firmament,*" &c., "*and God made two great lights,*" &c. There is, perhaps, no part of the history of Creation which has been so much cavilled at as this. The Infidel is frequently remarking that *our* God made light before He made the sun, which is the source of light. The objection, under any circumstances, would be far from a valid one, in the present state of our knowledge. The Hebrew word *owr*, which is in the third verse rendered light, may have a wider signification than has been generally attached to it. There are no other words in the language to represent the ideas of either *caloric* or *electricity*. That simple word might, then, for aught we know, be intended to represent the whole phenomena, thus indicating a union to which scientific researches are gradually leading us. And thus the light of the first day might be something very different from the light of the sun; for we know not by what means those undulations are excited which modern philosophy tells us convey the effects of light to the vegetable creation, or its sensation to the retina. But even if there be no such hidden meaning in the term, it is perfectly clear that the light of the first and the fourth day are not identical. Instead of the word *owr*, the word *meowroth*, "*light-bearer,*" is used; and to "*yehi,*" "*let be,*" there is added, in the second clause, *yehas*, to "*constitute,*" evidencing that some bodily substance is spoken of, which can be constituted a light-bearer, and not a mere *effect* like the undulations of a luminiferous ether. The simple meaning of the passage, then, seems to be, that God *constituted the sun and moon to be light-bearers to the earth, and to the human family, to distinguish between day and night, and mark for them appointed times and seasons, days and years.* Dr Geddes, moreover, a man of no light learning, considers that the words "*let there be,*" used here and in the former verse, are equivalent to "*let there appear,*"—i. e., be disclosed after a temporary ob-

scuration. A plain and literal rendering of these verses, therefore, divested of all traditionary glosses, would appear to me to indicate, that the earth, by means of some convulsion, had become "waste and desolate," "invisible and unfurnished," its surface covered with water, and its atmosphere so charged with carbon and watery vapour, that light could not penetrate through the dense mass; and "darkness was upon the face of the deep." That upon this unshaped mass, the Spirit of God began to operate by *agitation*, "moving upon the face of the waters;" then commanded light to shine through the thick atmosphere; then formed an expansion therein, "dividing the waters from the waters." After this, by processes of upheaval and depression, God gathered the waters into seas, and let the dry land appear. Subsequently, and as a consequence of these very processes carried on and continued, the atmosphere became clearer, and the luminaries of heaven became visible, the sun and the moon being *again* constituted the "great" or "chief" light-bearers to the earth, whose more ancient but humbler inhabitants had, ages before, been gladdened with their beams.*

464. The other portions of the history of Creation have been but little subjected to the cavils of Scepticism. Yet there are certain important omissions therein, which I must not pass over without remark, because they *may* have been intentional, and, possibly, may hereafter prove to be keys to the better understanding of the record.

465. "*Let the earth bring forth grass, the herb yielding seed,*

* The late Hugh Miller, in his "Testimony of the Rocks," earnestly and ably contended for a Theory now abandoned by most scientific Theologians—that the days were periods, and represent the various eras through which the earth has passed. With due deference to his authority, which is by no means to be treated lightly, I would rather look upon the periods, or eras, as typical of the days, even as the first vertebrate skeleton was typical of man. For while the facts of the Universe most clearly and most fully accord with the *literal* interpretation of Scripture, I see no reason for adopting a figurative one. Indeed, the whole bent of late scientific discovery seems to corroborate the views originally propounded by Chalmers and Hitchcock, that the days are literal days; that there is a chasm of indefinite ages between the first and second verses of Genesis; and that the history of Creation given in the third and succeeding verses, is that of the *last* creation, or collocation, only.

and the fruit tree yielding fruit after his kind, whose seed is in itself upon the earth." It has been suggested, that by these two divisions are indicated the Cryptogamic and Phanerogamic classes of vegetable creatures. Such, however, does not appear to be the natural meaning of the passage. Dr Pye Smith suggests, that it is a confirmation of his principle of interpretation that the language throughout has a simple reference to the wants and conveniences of man. "The vegetation," says he, "intended to be included in this primeval arrangement are (1) grasses, food for cattle; (2) herbs for human use, probably referring to grain and leguminous plants; (3) trees producing edible fruit; all considered merely in the light of utility to mankind. Of timber trees and thousand other important genera there is no hint."

466. Mr Ritchie, on the other hand, contends, at considerable length, that the description excludes altogether all acotyledonous and cryptogamic vegetation, of which, for the most part, he assumes the coal measures to have been formed. The "herbs yielding seed" he considers to indicate the monocotyledons; and the "trees which bear fruit, whose seed is in itself," to indicate the dicotyledons; and the entire absence of acotyledons from the record, he cites as evidently indicating a knowledge of their previous and then present (aquatic) existence.

467. Whatever be the true explanation of the fact, it is certain that Moses must have been acquainted with numerous classes of algæ and conifera, whose origin is not included in his record: and this omission gives some colouring to the idea, that the Creation of that period was only the creation of a class of vegetables necessary for the sustentation and well-being of the new and more perfect creature about to be brought forth. Moreover, the expression "*after his kind*," which occurs both in the account of the vegetable and animal Creation, would seem to indicate that there had been creatures of *other kinds* previously existing.

468. A similar omission of certain species appears to appertain to the record of the animal Creation. The command was given that the waters bring forth abundantly "*the moving creature that hath life*;" but Mr Ritchie contends that the

majority of marine molluscs, crustacea, polypifera, corallines, &c., might more properly be termed *living creatures that do not move*. Yet of these, for the most part, our limestone rocks are composed; and their absence also from the record, he contends, is a proof that He who indited it was aware of their previous and then present existence.

469. And, now, before I pass on to other difficulties and objections, I would just notice a few remarkable coincidences, and those but examples of many, between the Mosaic account of the Creation and facts which modern Science has elicited.

The first is, the recent origin of the human race. Atheists and Infidels had been wont to assure us that man had existed for ever; or that all knowledge of his origin was lost in the multitude of bygone ages. The stones, however, have found a voice—the petrified masses of the earth have spoken. They give us indisputable evidence, that the earth has existed for ages too long for man's calculations; but that he himself is a creature of yesterday—no record of himself (except in caves or fissures) being found lower than the alluvial deposit, which may be easily calculated to be but about some six thousand years old, the exact period during which, according to the Mosaic cosmogony, he has figured on the earth.

470. The second coincidence to which I would refer, is the unity of their testimony as to the origin of living things. Holy Scripture declares that God *created* the heavens and the earth, and all that in them is: and Geology testifies to successive acts of Creation—the bringing into existence of fresh races of animal and vegetable creatures, adapted to the changed condition of the earth, its waters, and its atmosphere, as old races became extinct, whose very remains were calculated to serve various purposes of future utility, when the earth became the residence of a higher order of beings.

471. The third coincidence I shall notice, invalidates the objection often brought against Moses, in common with the other inspired writers, that it is preposterous to think a God who possesses so vast a Universe as the telescope discloses should take any notice of the concerns of a little world like ours. Well was it argued by Dr Chalmers, that the revelations of the microscope, which displays an inhabited world in a drop of

water or a grain of sand, ought to silence such objections. Beautiful, too, was the picture he drew of the Son of God losing sight, as it were, for a time, of the many worlds which had not sinned, and following and bringing back the one prodigal planet, whose children had strayed from the path of holiness—like the shepherd in the parable, leaving the ninety and nine sheep in the wilderness, to follow the one which was lost. But arguments like these were at best only *theoretical*; while Geology has supplied us with *demonstrative* evidence of God's providential care, and providential interference, in the successive Creations to which the stony records of the earth bear witness.

472. The last coincidence I will notice, is one to which, not Geology, but another Science, gives its evidence. It is the fact elicited by the close and elaborate calculations of modern Astronomers, that, owing to a secular motion in the position of the major axis of the solar ellipse, arising from a direct motion of the perigee and the retrogradation of the node of the earth's equator on the ecliptic, (called the precession of the equinoxes,) a corresponding, gradual, but entire change, is going on in the relative positions of the major axis and the line of the equinoxes. Conjointly they accomplish an entire revolution in 20,984 years; and about 4000 years before the Christian era, coincided with each other. How strange a coincidence, if really an undesigned one, and the writer was not inspired, that Moses, a guessing impostor, should have fixed upon a period for the collocation of the earth, and the creation of its present races of inhabitants, when that earth's seasons were of equal length, and it was just starting on a cycle which would not be completed for more than twenty thousand years!

CHAPTER XIX.

OBVIATION OF SCIENTIFIC DIFFICULTIES AND OBJECTIONS CONTINUED—THE HUMAN ERA.

472*a*. SINCE the year 1859, the efforts of the scientific opponents of revealed religion have chiefly been turned in one, and that comparatively a *new*, direction. They have concentrated their powers upon the one object of proving, by geological evidence, that man existed before the close of the tertiary period; and consequently long anterior to the recorded time of his creation.

In a previous age various attempts were made to substantiate, by *historical* evidence, the very early date of the human race. And, again and again, as documents of ambiguous language were discovered and misinterpreted, the shout was raised and the cry sent forth, "Here is proof that man existed long before the date assigned for Adam's creation." Patient and careful examination has long since shown *that* proof to be fallacious. It has done more. It has made it evident that the records of all nations who possess any written records, and the traditions of all nations who possess any oral traditions, point back to a period when the history of man commenced anew with the subsiding of the waters of a flood. Still more, it has shown that that flood was, by consent of *all* nations, not earlier in its date than the Septuagint version of the Scriptures represents, though many of them make it earlier than the date to which the Hebrew version of the same Scriptures seem to point.*

* The Hebrew, the Samaritan, and the Greek (Septuagint) versions of the Pentateuch all differ in the chronologies contained in Genesis v. and xi. The differences may have arisen from errors of transcription; or from a wrong estimate of the value of more ancient marks of notation; or from a designed alteration of the record. From which of these it did arise, would require, at the present time, more than human intellect positively to pronounce. The learned disagree in their views as to which of the three has the highest claim to authenticity.

Past experience seems not to be lost upon the present generation of mankind. Periodicals of sceptical tendency are continually putting forth assertions about the "*great antiquity of the human race*,"—"fossil man,"—"man in the tertiary period,"—"man among the mammoths," &c.; portions of which are copied, with astounding titles, into the newspapers, and circulated throughout the length and breadth of the land. And Christian men read these apparent evidences of the untruthfulness of the Holy Scriptures, without having their faith in those Scriptures in any degree shaken; without giving up a hope and a belief whose influence has been inwrought into their very being.

In many instances, past experience of errors which have had to be unlearned, of the ten thousand conflicts from which the Bible has come forth triumphant, is, doubtless, the ground of this unshaken faith. With greater numbers, perhaps, the conviction of the truth of that religion which they have *felt* and *enjoyed* results from their own experience of its power. There seems, however, in addition to this, to have been conferred by God upon mankind, an *innate* power of estimating the true weight and value of evidence,—a power which often leads the unsophisticated and comparatively ignorant right, where the man of science runs astray. The unlearned Christian may not be able to reply to the Sceptic's vaunted *proof*. He may not see where its insufficiency lies, or be able to point out the fallacies which have led to a wrong induction. But he feels the so-called proof to be inconclusive; and as though intuitively aware of the difference between inductive evidence and mathematical demonstration, he generally comes to the conclusion that the alleged facts may be accounted for in some other way than by invalidating that which has substantial evidence to support its claims.* And this is

Our authorized version follows the Vulgate, which has chosen the most recent date of the Adamic Creation as the true one.

* It is a common thing with men of Science to accuse Christians of undue scepticism respecting apparent matters of fact which bear against their own views. But this same accusation might be retorted upon *them*. None more resolutely than they refuse to believe, on the strongest evidence, facts which will not accord with their systems. It may safely be affirmed that the python-

true philosophy. And it is the want of a proper recognition of this truth,—the insufficiency of the tests to which their

ess and her hundred eggs would have been treated as a fable if the matter had not occurred under their very eyes. The female badger having 14 or 15 months of gestation has been pronounced by them impossible; and yet as a matter of fact it has been proved again and again. I have heard the late Bishop of Rochester (Dr Murray) several times remark upon the obstinacy of a learned professor, who refused to believe that one of our English snakes could, like a marsupial animal, carry its own young, when some of his (the Bishop's) children, along with their nurse, had seen several young ones, on being startled, apparently run down their mother's throat, and the mother snake quietly glide away. Had this been the first testimony to such an occurrence the Professor's scepticism would have been more excusable; but many other persons had testified to witnessing the same wonder.

On another subject, (and I will refer to only one more,) popular belief and scientific dogmatism are now, and have been for nearly a century, at variance. I mean the capability of the toad to live in a state of suspended animation through an indefinite period of time, excluded from air and food. The instances recorded of toads being found embedded in blocks of wood, in blocks of stone, and in the solid strata of the mines, may truly be called "legion." I have examined into a few of the cases, and must say that there are few scientific facts (not capable of demonstration) which have stronger evidence to support them, though the constant dictum of Professors is, "The thing is impossible; there has been some deficiency in the observation."

At Brosely, Salop, some six miles from my present residence, in the autumn of 1855, a man, working for Mr Bathurst, of Benthall potteries, was digging clay from a pit, when his master, who happened to be present, pointed him to something unusual in a place from which a spadeful of clay had just been removed, and looking through an aperture which the grafting tool had made, he saw a good-sized toad there comfortably ensconced, with only just sufficient room for his body. The matrix, which bore its exact shape, was carefully taken away with it, and used afterwards as its habitation, being frequently moistened with water. The toad lived for many months, and was carried to various places to be lectured upon. *It had no mouth*; and an attempt was made to cut one that it might take food, but the incision healed up again. When it died it was sent to Shrewsbury to be stuffed, and the Taxidermist stated that its bones were not pliable like those of common toads, but more like ivory. The stratum in which this animal was imbedded was about five feet from the surface, a close compact clay; one of the lower members of a series which constitute the coal measures, which have been brought up by the upheaval of the Silurian limestone,—cropping out at the surface a short distance from the spot.

In the autumn of last year (1861) a toad was found in the coal mines of Berial Botfield, Esq., at Malin's Lee, not many hundred yards from my house.

hypotheses have been submitted, or, in popular language, the "leaping to a conclusion" upon evidence which, if otherwise weighed, would lead with at least *equal* force to a very different conclusion, that has led so many scientific men astray.

Brought into succinct and definite form, the statements and arguments of these latest "objectors" may be embodied in the following propositions:—

1st. Rude implements of stone and flint (evidently of human workmanship) have been found naturally embedded in strata of the tertiary period. They have also been found, connected "in situ" with the remains of extinct animals belonging to that period, in such positions as to lead naturally to the conclusion that they had been used for their destruction.

2nd. Human remains have also been discovered in connection with the fossil bones of the same extinct animals, among whose remains these implements are found, thus connecting the implements with their maker.*

The place where it was discovered was about 170 yards below the surface of the earth. It was imbedded in what is called the white clunch, beneath one of the coal strata. It was in the after part of the day. The men had been at work eight or nine hours, getting this white stratum from beneath the coal to "fall" it, when one of them observed a lump, as he drew it out with his "hack," part asunder, and disclose a living toad. He called to it the attention of another man, who was working next him; and both declare that the hole of the "clunch" in which it was imbedded bore its exact shape, and was smooth as an egg-shell. This animal, like the Broseley one, had no mouth; and was darker in colour than the common toad. It was sent to Mr Botfield, who kept it in a hollowed brick covered with a slate; but he did not supply it with moisture, and it died in a few weeks. On its death, Mr Botfield took it to Professor Owen, for the British Museum. He, notwithstanding his attention was called to the fact of its having no mouth, pronounced it as most probably a toad of the previous year. I could give several other instances of toads found in the mines in this parish, under circumstances in which the parties who released them from their "tombs" declare that they *could not* be deceived as to their being really imbedded in the strata. But here are the details of two cases out of hundreds recorded and unrecorded; and without venturing to pronounce whether the popular opinion is right or wrong, I *dare* venture to say that few of the facts of "inductive science" have stronger evidence to support them.

* If it be objected that I have not given the sceptical statements in *all* their strength, because still more extravagant assertions have been made in the Lectures of Professor Huxley, I reply, I have given them *all* the strength which

The inference drawn from these facts is that man certainly existed in the tertiary period, and probably in some of the earlier epochs which are in that period comprised.

Let us then calmly examine these propositions and the inference drawn from them.

472*b*. Certain rude implements of flint, as, for instance, arrow-heads, adze-heads, axe-heads, and wedges, have occasionally, for ages past, been discovered, buried in the earth, and received the name of "*celts*," under the impression that they were formed and used by the Celtic predecessors of the present inhabitants of western Europe. The same name, "*celts*," has since been extended to pieces of flint broken *naturally* into shapes somewhat resembling these, but which bear no marks or indications of artificial touch: the real "*celts*" being, in all probability, similar naturally-made instruments to which art and intelligence had given a greater finish to adapt them to its wants.*

The common term "*celts*" thus includes two distinct classes of articles, and the distinction, as it bears upon the evidence of man's alleged "*great antiquity*," is a most important one. In caves, and especially in cairns, or tumuli, the burying-places of the earlier races, they have mostly been found of the artificial class. In the gravel beds where they have been discovered, they have, on the contrary, usually been found of the natural class; and if, in some few instances, they bore *apparent* marks of artificial finish, it must be remembered that beds of gravel have, even within the past hundred years, been thrown, by cataclysmal action, into positions where, if their origin had been unknown, a much earlier date would have been assigned to their deposit.

It has been the practice of the opponents of Scripture to make no such distinction as that here pointed out in the

the evidence brought forward would warrant. The discoveries the Professor appealed to in corroboration (even as given in the periodical with which he is editorially connected, *The Natural History Review*,) not in any way bearing out his more "*extravagant assertions*."

* A writer in the *Times* engaged in the glass trade, whose letter appeared in the summer of 1859, intimated that glass, sometimes, in the process of manufacture, from some cause not yet clearly ascertained, separated itself into wedge-shaped pieces: and suggested the probability of flints under certain unknown conditions doing the same; thus forming the implements almost ready for the use of uncivilized man.

"celts;" but to proclaim, with flourish of trumpets, the discovery of celts in tertiary strata; though in no single instance, that I am aware of, has it been *proved*, both that the "celt" was artificially finished, and that the stratum in which it was found had remained undisturbed since its deposit in a previous geological era.*

472c. The discovery of these celts along with the remains of the mammoth, the rhinoceros, the Irish elk, the hyena, and the great cave bear; and the discovery of human remains in caves among the remains of these same animals, was at first a startling fact, which evidently tended towards conclusions different from those which had been usually rested on. But the conclusions thus disrupted were those of Science, and not of Theology. It was not the Bible but geological investigations which had led to the belief that these creatures were all extinct before man came upon the scene. They were looked upon as creatures confined to the tertiary period, and it was held that this period was closed by such an extensive cataclysm as must have destroyed every living thing.

There are few of the so-called "facts" of geology which are not called in question by one or other of its Professors; but if any one fact connected with the science may be regarded as *proven*, it is that the tertiary period *was* closed by a catastrophe of terrible violence, whose extent was almost, if not quite, universal, sufficient to bring about the condition described by Moses in Genesis i. 2, when darkness covered the face of the "great deep," or "agitated broken-up mass." Sir Charles Lyell, however, dissents from the general opinion, and holds that the so-called cataclysms have all been only local. His views, if I rightly understand them, are that, since the first creation of the earth, there never have been forces operating other than those which are now in operation in less intense

* In the "Apologist" for August, 1862, is a notice of an article by Mr Scipion Gras on the flints found at St Acheul. More than 3000 have been discovered there in the compass of two acres of land, which, with the entireness of their edges, shows that there must have been a considerable manufacture of them on the spot for commercial purposes. The author, after combating the views of those who refer the making of these instruments to times antedating the Adamic Creation, gives satisfactory reasons for referring it to early *historic* times.

degree ; and that in their previously more powerful exercise they never caused anything like general or universal destruction.

The evidence appears, indeed, greatly to preponderate on the *other* side. Yet Hugh Miller adopted similar views of there being no breaks in the continuity of life, because some of the larger marine species are found in continuance in several distinct geological epochs ; and because, also, the tertiary and the human period appear to be connected together, by eight or ten species of living creatures being common to both. These facts, however, are not sufficient to overthrow the accumulated evidence of repeated catastrophes, which have apparently desolated the whole surface of the earth. How long the desolation continued in each case we have no means of judging. It might be accomplished (naturally) in one day, or in a thousand years, according to the violence and intensity of the forces in operation ; for, within human memory, islands have been thrown up from the sea and cities engulfed with water in a few hours. Nor have we any data upon which to come to a *certain* conclusion, either that in each case all living creatures were destroyed, or that some few lived through the period of destruction, and again propagated their kind. All that has been really ascertained, by careful and vigilant investigation, is that, in most of the previous twenty-nine or thirty geological eras some one or two per cent. of the species existing in the previous era re-appeared. It is the dictum, not of Revelation, but of Sir Charles Lyell, that nature, having produced a species, broke the moulds, and never reproduced it except in the way of generation. The idea is *beautiful* ; but yet not necessarily *true*. He who peopled the earth, era after era, with creatures, to whose life and enjoyment it was progressively adapted, *might* think proper to repeat, with or without some slight variation, creatures, whose whole races, by cataclysmal action, had been previously destroyed.* We can

* If it were even *proved* (though there is yet no approach to proof) that intellectual creatures similar to man existed in the tertiary, or even the Mosaic, period, our opponents are mistaken in the conclusion that Scripture would be invalidated thereby. Our connection with Adam, as our federal head, would be in no respect altered by there having been somewhat similar creatures, living in previous eras, with whom we had *no* connection. If it be said, Scripture gives no account of such creations,—I reply, Neither does it of the creation of

only take the facts as they stand, which have been clearly brought out by M. D'Orbigny. And if it were found that in the human period, not merely ten but one hundred species existed, in no way distinguishable by anatomical examination from those which existed in the tertiary period, it would only be what might analogically be expected, from what had previously happened, and in no way invalidate the evidence of cataclysmal action.

Professor Huxley, in his address delivered at the anniversary meeting of the Geological Society for the present year, (1862,) calls in question the contemporaneity, or identity, of date, of what are called the *same* strata in different parts of the globe: suggesting that the "Devonian" of the British isles *might* be contemporary with the "Silurian" in North America and the "Carboniferous" in Africa. This seems to indicate a new line of argument, (now their previous ones are failing,) to be taken up by those who regard the production of living creatures as "an expression of the mode of operation of natural forces;" because, as he urges, "those seemingly sudden appearances of new genera and species, which we ascribe to new creation, may be simple results of migration." If, however, this new reading of earth's strata were correct, the migration would not *always* be of advanced creatures. The superior strata would sometimes exhibit a retrogression in their fauna and flora. Or if each race of creatures migrated, one after another, to fill up *the same succession* in all parts of the globe, it would give evidence of a superintending providence, of the exercise of an arbitrary *will*, which would manifest the existence of a personal Deity as clearly as could any act of creation. Moreover, the missing of several strata in certain places, and the fossils of the next which appears not being those which would follow the previous one in the order of succession, but the *idia* of the stratum which does appear, the forms which characterize it in all places where it is found, are another clear evidence of the "synchrony" or contemporaneity of corresponding beds. They prove that the new organisms (which must have been created, migrate from where angels; but yet in many places it gives clear intimation of their having existed prior to the creation of man.

they might) were a *new* creation, to supply the place of those destroyed by cataclysmal action.

472*d*. Let us, however, take another view of the facts which led Hugh Miller to the conclusion that geological "catastrophies" were only local ones; and that the "six days" of Genesis were periods of indefinite duration. We may use those facts for a very different purpose. If one animal is found to be common to the tertiary and the human periods why may not another be, up to the one or two per cent. of the whole number of species, which the analogy of past epochs would allow? Creatures, which have been ranked as belonging *only* to past geological eras, have been found to be *now* existing in the wilds of Russia. The urus, or gigantic ox, though now only found in a fossil state, is mentioned by Cæsar, who describes it as little less than an elephant. The European bison disappeared about the same time. The gigantic elk, geologically called the Irish elk, has been hunted in Europe during the historical period. The remains of a mammoth have, in the present century, been discovered preserved in ice, in so fresh a state that its coat was covered with hair and its flesh was eaten by dogs: and the tusks of that animal, so commonly found in Siberia, are not stone, but ivory.* Why then should the discovery of man's bones, or implements, along with the bones of these creatures, be considered as evidence that *he* existed in past geological eras; and that the Scripture account of his creation is untrue?

What animals, now extinct, were contemporary with man in antediluvian times neither Theologians nor men of Science are in a position to declare. But we have every reason to believe that nearly all, if not *all*, the extinct species, in connection with whose remains his bones or works have been discovered, have become extinct even *since* the deluge. The opponents of re-

* A tooth of a mammoth, which was taken up some years ago out of some drift gravel near to a bend of the Trent, which is adjacent to his residence, is now in the possession of my friend and relative, Mr William Barker, of the Meadow House, Beeston, Notts. It was *apparently* fossilized: but an accident, by which it was broken in two, revealed the fact that it had only an *outer coat* of stone, such as it might have received, in a few months, at the petrifying springs of either Derbyshire or Yorkshire.

vealed religion would therefore have acted much more philosophically had they lengthened the date of these "extinct" creatures, rather than carried man back to a so much earlier date. In this case they would have had no evidence against them, and at least a *primâ facie* case in their favour; while to oppose their foregone conclusion there is an amount of evidence against which their puny assaults are but as an arrow shot against a rock.

472*e*. All the remains of man, fossilized or unfossilized, which have been discovered in connection with those of extinct animals, have, with a few exceptions, been found in caves. Strange, indeed, have been the speculations which, time after time, have been indulged in, as to the remote antiquity of the race, because such remains were discovered in Britain along with those of the fossil hyena. And in the number of the Natural History Review for January, 1862, M. Lartet pronounces some bones found in a cave (evidently a place of sepulture), near Aurignac, in France, as belonging to the tertiary period, because there are discovered, in connection with them, those of the great cave bear.* And yet, in the same number of the Natural History Review, Professor Lubbock, impelled by overwhelming evidence, ranks the mammoth, the rhinoceros tichornus, the great cave bear, and the fossil hyena, as belonging to *post-tertiary times*. Instead, therefore, of the discovery of man's bones and implements among the remains of these

* In this case, a simple slab of stone, a few centimetres in thickness, and a thin covering of loose earth, sufficed to preserve intact the sepulchre itself: and, outside the cave, the relics of the funeral repasts, and the various implements and arms left by the human inhabitants, remained undisturbed. Yet because of the remains of the great cave bear, &c., it was assigned to the tertiary period. And, in answer to the anticipated question, "How did it escape the effects of the cataclysm which closed that period?" M. Lartet replies, that "a very slight elevation of the borders of the plateau, in which Aurignac is situated, sufficed to protect the whole intermediate region from the invasion of the Pyrenean drift."—Query 1. As the Pyrenees were thrown up at a much earlier epoch, would not the plateau at that time be naturally submerged *before* there was any drift from the Pyrenees? Query 2. Could not such an elevation as would protect the land have protected also the great cave bear? and must that cave and its contents, even on the author's own principles, be *necessarily* so ancient because the bones of that creature were found among the other remains outside?

extinct animals giving evidence that he existed before the time usually assigned to his creation, viz. the subsiding of the catastrophe which closed the tertiary period,—such discoveries only supply proof that those animals existed to a later period than has by men of science been latterly supposed.

Sir Charles Lyell, moreover, at the meeting of the British Association in 1859, when the Prince Consort occupied the chair, admitted that little dependence was to be placed on the validity of the evidence supplied by caves, “seeing that so many caves have been inhabited by a succession of tenants, and have been selected by man, as a place, not only of domicile, but of sepulture; while some caves have also served as the channels through which the waters of flooded rivers have flowed, so that the remains of living beings which have peopled the district at more than one era may have subsequently been mingled in such caverns, and confounded together in one and the same deposit.”*

And now let us turn, as a sample, to one of the most important and most vaunted instances of the discovery of human remains, not in a cave, but imbedded in what was supposed to be a stratum of pre-Adamic date. I give it in the words of Sir C. Lyell, as reported in the *Athenæum*.†

“So long ago as the year 1844, M. Aymard, an eminent palæontologist and antiquary, published an account of the discovery, in the volcanic district of central France, of portions of two human skeletons, (the skulls, teeth, and bones,) embedded in a volcanic breccia, found in the mountain of Denise, in the environs of Le Puy en Velay, a breccia anterior in date to one, at least, of the latest eruptions of that volcanic mountain. On the opposite side of the same hill the remains of a large number of mammalia, most of them of extinct species, have been detected in tufaceous strata, believed, and I think correctly, to be of the same age. The authenticity of the human fossils was from the first disputed by several geologists, but admitted by the majority of those who visited Le Puy, and saw with their own eyes the original specimen now in the museum of that town. Among others, M. Pictet, so well known by his excellent work on palæontology, declared, after

* *Athenæum*, Sept. 24, 1859.

† *Ibid*.

his visit to the spot, his adhesion to the opinions previously expressed by Aymard. My friend, Mr Scrope, in the second edition of his "Volcanoes of Central France," lately published, also adopted the same conclusion, although, after accompanying me this year to Le Puy, he has seen reason to modify his views. The result of our joint examination—a result which, I believe, essentially coincides with that arrived at by MM. Hébert and Lartet, names well known to science, who have also this year gone into this inquiry on the spot, may thus be stated. We are by no means prepared to maintain that the specimen in the museum at Le Puy (which unfortunately was never seen *in situ* by any scientific observer) is a fabrication. On the contrary, we incline to believe that the human fossils, in this and some other specimens from the same hill, were really imbedded by natural causes in their present matrix. But the rock in which they are entombed consists of two parts, one of which is a compact, and, for the most part, thinly laminated stone, into which none of the human bones penetrate; the other containing the bones is a lighter and much more porous stone, without lamination, to which we could find nothing similar in the mountain of Denise, although M. Hébert and I made several excavations on the alleged site of the fossils. M. Hébert, therefore, suggested to me that this more porous stone, which resembles in colour and mineral composition, though not in structure, parts of the genuine old breccia of Denise, may be made up of the older rock broken up and afterwards re-deposited, or, as the French say, *remané*, and, therefore, of much newer date, an hypothesis which well deserves consideration; but I feel that we are, at present, so ignorant of the precise circumstances and position under which these celebrated human fossils were found, that I ought not to waste time in speculating on their probable mode of interment, but simply state that, in my opinion, they afford no demonstration of man having witnessed the last volcanic eruptions of Central France. The skulls, according to the judgment of the most competent osteologists who have yet seen them, do not seem to depart in a marked manner from the modern European, or Caucasian, type, and the human bones are in a fresher state than those of the *Elephas meridionalis*, and other quadrupeds

found in any breccia of Denise which can be referred to the period even of the last volcanic eruptions."

This "important case" then is disposed of by Sir C. Lyell himself, who will not be suspected of having too strong a Scriptural bias. But, even if it were otherwise, had he been fully of opinion that the breccia in which the human remains were found, had *not* been broken up and re-deposited, there is no *proof* of that breccia antedating the Adamic creation. Its age is merely a matter of opinion. That opinion is arrived at by an induction which may have led to an erroneous conclusion. It has not, cannot have, one tithe of the evidence to support it by which the truth of the Holy Scriptures is sustained. One thing indeed *might* have been made clear—one which has already been made probable, and ere long, perhaps, may be established upon evidence too strong to be controverted,—that man had been contemporary with a class of animals in Europe, which, according to generally-received opinion, has been confined since his appearance on earth to other and warmer zones.* That opinion, however, was founded, not upon Scripture, but upon historical and geological data: and it is not the Theologian but the Geologist who will have to learn his lesson over again. The Bible gives us no intimation what animals existed in Europe in antediluvian, or even in early post-diluvian times. It leads us, however, by suggestion, to the conclusion that several kinds have become extinct in the human period; for neither the behemoth, the leviathan, the dragon, nor the unicorn, can be certainly identified with any races now living.

Let the Geologist and the Naturalist go on in their several walks. They have a noble work before them, in the study of God's creations, past and present, and we thank them for every addition they make to our knowledge. But it would be far better for some of them to withhold their dark hints and inuendoes about invalidating *other* records, *their* study of which has been wholly insufficient to lead them to the truth!

* The opinion, though general, has not been *universal*, for Shakspeare makes one of his Roman heroes say:—

"Close to the capitol I met a lion,
Which growled upon me."

CHAPTER XX.

OBVIATION OF "SCIENTIFIC" DIFFICULTIES AND OBJECTIONS CONTINUED—CONSIDERATION OF THE OBJECTION THAT THE PRODUCTION OF THE WHOLE HUMAN RACE BY ONE PRIMEVAL PAIR, AND ITS MORE MODERN UNITY IN THE FAMILY OF NOAH, CANNOT BE MADE CONSISTENT WITH THE KNOWN VARIETIES OF OUR SPECIES.

473. In proceeding with the difficulties which I feel it necessary to obviate, in order to show the agreement between the Mosaic history and the facts which modern Science has elicited, the next in order to be noticed is the objection, "That the production of the whole human race by one primeval pair, and its more modern unity in the family of Noah, cannot be made consistent with the known varieties of our species."

This objection was started by the Encyclopædists who preceded the first French Revolution; and, not to mention the vagaries of Monboddo and his "men with tails," was urged with all the power and talents of Rousseau, Voltaire, and their *confrères*. The investigations of Naturalists, and their almost unanimous conclusion, that the race and the species were essentially one, seemed for a time to set it at rest. It has, however, been latterly revived by Agassiz, Nott, and others, in France and America, and in our own country by Dr Robert Knox—the lack of new facts on which to ground the system being in no small measure compensated by boldness of assumption, and the unflinching confidence with which mere theories are promulgated.

474. The principal difficulties which have been at any time brought forward in reference to the unity of the human race may be summed up under three heads—difference in colour, in structure, and in adaptation to particular climes.

As regards difference in structure, Dr Knox, with characteristic boldness, thus speaks: "Wild, visionary, pitiable theories,

have been offered respecting the colour of the black man ; as if he differed only in colour from the white races. He is no more a white man than an ass is a horse or a zebra." That differences of structure do exist is a matter of notoriety. The Negro, with his prominent mouth and receding forehead—the flat-headed tribe of American Indians—the small-footed Chinese—the dwarfish Bosjesman of the Gariep, with his yellow degenerate frame, and ever-restless eye—and the well-formed European, with his high, prominent forehead, and intellectual countenance, constitute varieties which, at first sight, would seem to mark distinct species, rather than distinct *races* of the same *species*. But the difficulties vanish as the investigation becomes more minute ; and it is found that, with the exception of those instances where the developments of nature, in infancy and childhood, are interfered with by arbitrary contrivances, to produce what is esteemed to be beauty,—as in the foreheads of the flat-heads and the feet of the Chinese,—there are examples, in each race, of individuals who approach to the exact form of the others ; and who, if they were to be judged of by their skeletons, might be pronounced of another family than that to which they really belong.

475. In the inferior departments of organized life we see continual examples of improvement and degeneracy, so great as, in a few generations, to alter the structure, and form distinct varieties. Is it, then, too much to suppose that, in ten times as many generations, difference in manners and customs, in locality and climate, in habit and mode of life, will alter the frame of *man*, so tending to variety that two individuals of the species have never been discovered who in all respects resemble each other ? Civilization and barbarism, heat and cold, repletion and scanty sustenance, free upland air and miasmatic swamps, are not so slow in their effects as the theories of some would-be Philosophers would make them. If Dr Knox had been an unprejudiced observer, instead of a determined searcher for differences, he would not have "questioned the theories of progress in time." Observation demonstrates that such influences as I have indicated make even more rapid changes than *any* "theories of progress in time" have ever yet demanded. Nor is anything so calculated to make distinct

varieties as the isolation of families and races, of which, in many parts of the world, and in the case of one family, (the Jews,) in every part of the world, we have illustrative examples. Had the celebrated "Porcupine Family," so often referred to, intermarried with one another, and kept themselves separate from other races, they would have formed a variety far more distinct than any other in existence.

476. The "structural" differences on which the "distinctive" theory is built, are, a difference in the shape and size of the skull, in the edges of the jaw or maxillary bones, and in the less development of the fingers, and comparatively greater length of web in the Negro hand. Such differences in any other than the human races would have been held as amounting to nothing. Nearly every race of animals which Naturalists class as identical has far greater distinctions than these; and as they approach nearer to man, and are by him domesticated, and placed, in that domestication, under different influences of climate, habit, food, and training, their varieties, as in the case of the horse and dog, become more marked and conspicuous. And man's frame, though he be the "lord of creation," is not free from similar tendencies to structural change. It has been very truly remarked, that, "what there was or now exists, in the climate of inter-tropical Africa, to give the inhabitants in the different localities of those regions such great diversity in the shape of the head, the expression of the countenance, and the structure of the hair, is just as difficult for us to conceive as for our opponents to explain why, in the same country, the hog has become black; the sheep has lost its wool and put on a covering of black hair; and the dog, as well as some breeds of pigs, have become naked: or why it is that a variety of the common fowl (*Gallus moris*) is not only black in colour, but has the comb, wattles, and skin dark purple, and the periotium of the bones black. When these phenomena in the lower orders of animals shall have been fully accounted for by our opponents, they will have afforded us some lights by which we will be enabled to explain the causes of difference in human forms and complexions."*

477. Great as are the differences which Dr Knox professes

* See Smythe "On the Unity of the Human Races," p. 254.

to discover between the Negro and the white man, differences extending to “everything *as much as colour*,” we have demonstrative proof that a change of circumstances will bring him much nearer in form to the European; though, even were it not so, an idiot is not less a child of the same parents than his more gifted brother. We have seen, with our own eyes, freed men of Negro race, whose conformation of head was more after the Caucasian mould than that of a vast multitude of Sclavonic-Germans or Anglo-Saxons; and have heard them, with our own ears, proclaim the glad tidings of salvation. Nor do the Negro race stand still in this respect, under far less elevating circumstances—I mean in the state of slavery. Free in their native swamps, whose very atmosphere is death to all who are not “acclimatized,” they may, like the Irishman in the “wilder” west, make no advances in physical development. But Dr Bachman of Charleston, South Carolina, has testified to the improvement in the skull, and better development of the African race, in that district, even where they are not free. He says: “We have still some hundreds of native Africans remaining in South Carolina; some of whom present the tattoo received in Africa. They belong to tribes that were the progenitors of our Negroes. They present in their thick lips, the curvature of the legs, the projection of the heel, the narrowness of the forehead, which is generally wrinkled, and in the thickness of the lower jaw, such striking peculiarities when compared with our Negroes of unmixed blood that have been born in this country, and are but three or four generations removed from their African forefathers, that we have for many years past been in the habit of detecting their origin at a glance.”

478. Dr Pritchard also informs us, that the third generation of those slaves in the United States who live in houses have little left of the depressed nose; and that their mouth and lips become more moderate, while their hair grows longer at each succeeding generation. Again, to take examples of an opposite kind, Long, in his *History of Jamaica*, and Edwards, in his *History of the West Indies*, have both remarked that the skulls of the white settlers in those countries differ sensibly in shape from those of Europe, and approach to the original American configuration.

479. And what if there be (though the fact is disputed) a

slight difference between the Hottentot or Bosjesman and the more civilized races in the edges of the maxillary bones, have we not seen (as instanced by the author of the "Vestiges") the hog of the farm-yard grow in a few generations, when left to wander in the woods, into the formidable wild boar of the forest, with warlike tusks, with altered vertebræ, with ears erect, and raised and broadened head? And is the slight change in the one case more difficult to account for than the great and palpable one in the other? In every important, every essential, structural particular, the human race is *one*. Dr Bachman sums up the marks of unity in the following sixteen particulars:—

"1st. That all the varieties evidence a complete and minute correspondence in the number of teeth, and 208 additional bones contained in the body.

"2nd. That in the peculiarity in the shedding of the teeth, so different from all other animals, they all correspond.

"3rd. That they all possess the same erect stature.

"4th. That they are perfectly alike in the articulation of the head with the spinal column.

"5th. That they all possess two hands.

"6th. That there is universally an absence of the intermaxillary bone.

"7th. That they all have teeth of equal length.

"8th. That all have smooth skins on the body, and heads covered with hair.

"9th. That all the races have the same number and arrangement of muscles in every part of the body, the digestive and all other organs.

"10th. That they all possess organs of speech, and the power of singing.

"11th. That they are all omnivorous, and capable of living on all kinds of food.

"12th. That they are capable of inhabiting all climates.

"13th. That they possess a slower growth than any other animal, and are later in arriving at puberty.

"14th. That in every race there is the same peculiarity in the physical constitution of the female, differing from all other mammals.

"15th. That all the races have the same period of gestation,

on an average produce the same number of young, and are subject to similar diseases.

"16th. In which, most of all, they differ from every other creature,—that they all possess mental faculties, a conscience, and a hope of immortality."

480. Far less correspondence than this, in all essential particulars, would have been considered sufficient to establish the unity of any other race of creatures. Vain is it, then, for the enemies of religion to attempt to show that the races of man so differ from each other, that they must have sprung from different originals, in order thus to induce the belief, that, by some extraordinary efforts of unaided nature, human creatures might be fortuitously produced.

481. I come now to the second difficulty—the differences in "colour." Through all time, till the Encyclopædists arose to give, as they thought, Christianity its death-blow, it was a matter of almost universal belief that the differences arose from differences in climate. The regular occurrence of black races within the tropics, and their gradual change to white in temperate and more northern climes, appeared to be a standing testimony to the truth of the assumption. But finding these differences of colour in the most ancient pictorial representations, and finding them mentioned also in very early historical writings, man's tendency to Scepticism in later days induced him to indulge the dream that the coloured races were always so, and that climate could not have produced the change. The difficulties which they thus threw in the way of Christian Revelation, wherein it is declared that God made of *one blood* all the nations of the earth, caused stricter investigation to be made. And those investigations terminated, as usual, in the establishment of the revealed fact; and in the complete refutation of the strange conceit so dogmatically uttered. It was found, that, in a very few generations, the fair European or Shemetic or Iapetan race became dark within the tropics, and ultimately, in no very long period, as dark as the Cushites or the Phutim. The descendants of Europeans in India, as shown by Bishop Heber in his "Narrative,"* and Dr Wiseman in his "Lectures,"† have totally changed their colour;

* Vol. I. p. 68.

† Lecture IV. p. 149, &c.

and this fact is the same alike with regard to Persians, Greeks, Tartars, Turks, Arabs, and Portuguese. The Portuguese who have been naturalized in the African colonies of their nation, have become entirely black. And though last, not least, the Jew, that standing testimony to the truth of Revelation, though continuing distinct and separate from all other nations, yet inhabiting nearly every country, assumes nearly every hue which is characteristic of the family of man. In the plains of the Ganges, he puts on the jet-black skin and crisped hair of the native Hindoo; in milder climes, he wears the natural dusky hue and dark hair of the inhabitant of Syria; and under the cooler sky of Poland and Germany, assumes the light hair and fair ruddy complexion of the Anglo-Saxon. Nay, more, on the Malabar coast of Hindostan are two colonies of Jews, an old and a young colony, separated by colour. The elder colony are black, and the younger—dwelling in a town called Mattabheri—comparatively fair. The difference is satisfactorily accounted for by the former having been subjected to the influence of the climate for a much longer period than the latter.* Since, then, the marks of unity in the Jewish race are indisputable, why, on account of such differences of colour as are manifest in that single race, should it be assumed that the *other* races of men could not proceed originally from one primeval pair?

482. This evidence may well be considered as sufficient; but there is something further to be adduced. Here, as in other departments of Science, the microscope has added its testimony to the truth of Revelation. It was at one time supposed that the marked and permanent differences in the cuticle existing under the integument of the white man and the Negro, were evidences of a difference in species. Microscopic anatomy, however, has satisfactorily proved that the colour of the skin exists in the epidermis only, the “rete mucosum,” which was once described as a separate layer, being simply the new soft layer of epidermis. The colour is the result of the admixture of pigment cells with the ordinary epidermic cells. Their office appears to be, the withdrawing from the blood, and elaborating in their own cavities, colouring

* See Smythe's “Unity of the Human Race.”

matter of various shades, from which all the hues that distinguish man proceed. And, doubtless, when sufficiently investigated, this will be found to be a benevolent provision of the great Author of nature, capable, in many ways which we cannot yet understand, of assisting in acclimatizing man to the various localities of his habitation—like the change from wool to hair, and from a covered to a bare skin, in other portions of the animal creation. We have one instance of this in the fact that a black skin, absorbing the heat, and carrying it beneath the surface to be evaporated by perspiration, does not blister, like a white one, when exposed to the sun-beams; and how many others may there be, which have not yet been discovered! *

483. This brings us naturally to the third head of the objection—the adaptation of particular races to particular climes.

Dr Knox speaks with as much confidence, not to say flippancy, of certain races of men being indigenous to certain climes, as though *he* was their Creator, and had placed them there. And with just as much confidence, contrary to all existing evidence, and to the opinions of all men in any degree eminent in the science, he speaks of men as existing through “several geological epochs.” Indeed, these two phases of impertinence he frequently puts forth together. “The precise geological period,” he says in one place, “when man appeared on the earth has not been determined; nor what race appeared first, nor under what form. But it is evident [?] he has survived several geological eras. On these points all is at present conjecture; but as man *merely* forms a portion of the material world, he must of necessity be subject to all the physiological and physical laws affecting life on the globe.” “The history of the races of men,” he says in another place, “must be rewritten from the beginning. Nothing is known of the Corsican race; still less of the Sardinian—the remains, NO DOUBT, of primitive races once inhabiting the shores and islands of a series of lakes now comprised in the Mediterranean Sea; PRIMI-

* It may yet be found that this difference in the effect of heat upon a black and a white skin, may be the reason why the black man can sleep unharmed under the hot beams of a tropical mid-day sun, while it would be death to the white one

TIVE RACES, like the Basques, of whom so little is known, who yet may, in remote ages, have played a conspicuous figure on the earth *before Sahara was a desert, or the Atlantic a sea.*" "In the west [of Scotland] and in the Hebrides," he says in another place, "there are very curious-looking, big-headed persons, with long arms, and a dwarfish, warlock look, descendants, POSSIBLY, of *races long buried under the Atlantic waves.*"

484. These are specimens of the assumptions and conceits which characterize the whole of this gentleman's remarkable lectures; in which, if I rightly understand him, he endeavours to make it appear that all the varieties of men are different races, springing from different originals, specially adapted to the climates in which they came first into being: that many of such races have become extinct; and others are now becoming extinct; "wearing out," and giving way before more energetic races, newer productions of all-prolific nature. Of these, I may instance the "war-like Celt," and the "over-reaching, go-a-head Saxon," who would, according to Dr Knox, shortly divide the world between them, but that, their nature being different from that of the dark races, they will be obliged to allow them to exist within the tropics and in the adjacent countries, because themselves cannot *live and labour there.*

485. Acclimatized! the experience of the past two hundred years has sufficiently shown that Europe's children may, in a few generations, be acclimatized anywhere, except in pestilential swamps, which lower the character, and debase the physical conformation, even of those born and reared among them; and whose progenitors, no doubt, inhabited those localities before their miasmatic peculiarities were so fully developed. The very secretions which we noticed as changing the colour of the skin, may have some yet undiscovered effect in adapting man to the locality in which he dwells; for as soon as his skin assumes the natural hue of the clime, he becomes as a native in it.

486. And what if there be a DIFFERENCE in *adaptation!* When He, who from the beginning determined the bounds of their habitation, parcelled out the earth among the sons of Noah, it is reasonable to conceive that He gave them an adapta-

tion to the portions He allotted them, or endued them with an unusually plastic power, by which the race of Ham speedily became, as it were, indigenous in Africa, the race of Shem in Asia, and that of Japhet in Europe's colder clime! It is just what we might expect from the Author of all the adaptations we are constantly witnessing in every part of the material Universe.* As for the fact of which Dr Knox makes so much,—the wide extension and predominating influence of the European races,—he need not, to account for this, have resorted to the fancy of their being a younger stock, and consequently more full of energy and vigour than other “degenerate races.” If he had deigned to consult the oracles of truth, on which it was his transparent purpose to cast vituperation and scorn, he might have found this fact accounted for in the prophecy of Noah, wherein Japhet was promised eventual enlargement, that he should dwell in the tents of Shem, and Ham should be his servant! †

* Since writing this, I have seen a similar idea more fully carried out by Dr Hamilton, of Mobile, who contends that the varieties of the human race were miraculously constituted at Babel, at the time of the confusion of tongues, such a varied constitution being a necessary adjunct to their dispersion through the earth. While speaking of Babel, I would here notice the substantial agreement of all antiquity about the main points of the Mosaic narrative respecting its tower.—“Herodotus, Strabo, Diodorus, Ctesias, and Alexander the Great, who also visited the ruins, though differing in some minute particulars, dependent on the accuracy of their several observations, and the general sources of their information, yet agree in all the main facts, and present just such a statement as, considering the age in which they lived, and all the circumstances of the case, we might have expected. Everything comports minutely and perfectly with the much more brief, and much earlier, record of Moses.”—*Redford's “Scripture Verified,”* p. 156.

† “In the history of each of these great divisions [of mankind] the characteristic sentence of Noah, legibly inscribed, at the present time, upon the nations that respectively owe their origin to Shem, Ham, and Japhet—it seems impossible, certainly unreasonable, to refuse our assent to the inspiration of Moses. No impostor, and no mere philosopher, would have ventured upon such sweeping sentences, views so general, characteristics so peculiar. The correspondences between the historical facts and the written record are such as no ingenuity, no penetration, no calculations of human reason could have anticipated. Who could have foreseen, at the age at which we are sure Moses wrote, that the Africans would not emerge and become the conquerors of Europe? Or

487. It is proper to notice a few more evidences of the unity of the human species, before I dismiss this branch of the subject. The first of these is, the similarity which exists between the various languages of the world. Into this question, Dr Wiseman, in his first and second lectures, has elaborately entered, demonstrating the structural affinity of some of those which were thought to be most dissimilar. Nor is that which may properly be called structural the only affinity they bear. There are resemblances, also, in words, which bear the same meaning—resemblances too close and too numerous to be the result of chance. Dr Young, in his “Remarks on the Reduction of Experiments on the Pendulum,”* applying the mathematical test of his calculus of probabilities to this subject, brought out the following result: “That nothing whatever could be inferred with respect to the relation of two languages, from the coincidence of the sense of any single word in both of them; and that the odds would be three to one against the agreement of two words; but if three words appear to be identical, it would then be more than ten to one that they must be derived in both cases from some parent language, or introduced in some other manner. Six words would give more than 1700 chances to one, and eight near 100,000; so that in these cases the evidence would be little short of absolute certainty.” Proved, then, by this test, the Basques, whom Dr Knox would make so ancient, seem to be derived from the Coptic Egyptians; and the unity of the human race may be considered as indisputable, for every lan-

who could have predicted that the Asiatics, then comprising all the mighty empires, and almost all the civilized world, would not overrun and subdue all the rest? Who could have determined that Europe, then as uncivilized and degraded as Africa is now, indeed, scarcely peopled, should become the predominant section of mankind, vanquish the vast Empires of the East, dwell in the tents of Shem, and make Africa its servant? These great events in the history of nations then lay hid far beyond the reach of human sagacity, and could have been foreseen only by that wisdom which discerneth the end from the beginning. Yet they were foreseen, and described by the pen of Moses, and put on record in those few brief sentences, of which all national histories are now found to furnish the most obvious illustrations and confirmation.”—*Redford's Scripture Verified*,” pp. 193, 194.

* “Philosophical Transactions,” Vol. CIX., for 1819, p. 70.

guage points to its original in Asia; even the languages of the aboriginal Americans having one hundred and seventy words identical with those of that cradle of the human race.

488. Another fact too, which has latterly been brought under notice by Humboldt, in a letter to Dr Ahrendt, at Guatemala,* is well worth recording here. It is, that the idols Buddha in India, Woden in Western Europe, and Votan in Central America, all gave name to the third [fourth] day of the week. Impressively does the venerable Philosopher ask the question whether they are not the same, for the names are essentially identical, and are applied to exactly the same object, evidencing most distinctly a unity of origin—a unity of race.

489. The next point I notice is, the modern theory supported by Linnæus, Humboldt, and others—that the various members of the animal and vegetable families have been created in particular centres suited to their development, from which they have spread abroad into other portions of the earth. This was thought at one time to militate against the unity of the human race, it being conceived that the different races had been created in different centres, suited to their colour and conformation. But Professor Forbes has shown, in the clearest manner, that analogy and facts are decidedly against the creation of the same species in a plurality of centres: and Mr Pickering also declares that “nature” has not re-produced any species in different quarters of the globe.

490. A further evidence of the unity of the species may be found in the fact, that there is an essential similarity between the blood corpuscles of all the races of men: and while it has been found that, in cases of extreme inanition, a transfusion of blood from the veins of any one man into those of another will preserve and restore life, a transfusion of blood from different *species* has invariably proved fatal.

491. Perhaps, however, there are no evidences more convincing than those connected with hybridity, with which I shall conclude. Dr Pritchard’s laborious researches have established the fact that hybrids are always barren, and when produced by the arbitrary contrivances of man, in a few gener-

* Published in the London Daily Papers, Nov. 11 and 12, 1853.

ations, at most, become extinct. Yet, great as are the varieties of the human species, the individuals of the most dissimilar tribes breed freely with one another ; and the progeny has nothing of a hybridal character, but is as fruitful as the parents from whom it springs. Dr Bachman states the following to be the conclusions to which he was incontrovertibly led by the facts in regard to all the animal creation :

“1st. Nature, in all her operations, by the peculiar organization of each species—by their instinctive repugnance to an association—by the infertility of an hybrid production, when, by art or accident, this takes place—and by the extinction of these hybrids in a very short period of time—gives us the most indubitable evidence, that the creation of species is an act of Divine power alone, and cannot be effected by any other means.

“2nd. That no race of animals has ever sprung from a comingling of two or more species.

“3rd. Domestication, in every species that has been brought under subjection, produces striking and often permanent varieties, but has never evolved a faculty to produce fertile hybrids.

“4th. Since no two species of animals have ever been known to produce a prolific hybrid race, therefore, hybridity is a test of specific character.

“5th. Consequently, the fact that all the races of mankind produce with each other a fertile progeny, by which means new varieties have been produced in every country, constitutes one of the most powerful and undeniable arguments in favour of the unity of the race.”

492. With medical men in general, the name of Müller is a name of authority ; and he says of the different races of mankind—“Their unions are fruitful, and the descendants from them are so likewise ; whereas if the races were distinct species of a genus the descendants of mixed breeds would be unfruitful.” But *authority* and *fact* are the same to Dr Knox. Every attempt of the combined forces of Scepticism having failed to produce, or point out, a fertile hybrid race,—a single case of a new race of animals or birds springing from an association of different species, he boldly makes the assertion, that the mixed

racess of men are hybrids, and are gradually dying out. He does this, too, in the face of the incontrovertible fact, that, in Mexico and South America, a new and fertile race has sprung up, between the European and native Indian, which, though not the hardiest in the world, has continued prolific for hundreds of years; and that in the United States also a new race has sprung up, by admixture of Anglo-Saxon and African, (for at least five generations past, in many instances unmixed with either of the parent races,) which is *now* prolific, and has continued so for nearly two centuries and a half. Yea, he does it in the face of the undeniable fact, that his exemplar man, of indomitable energy and go-a-head propensities—the British Anglo-Saxon—is the production of a most complete admixture of races which he himself declares to be distinct; and, if distinct, it matters not, as regards the question of hybridity, how widely they may vary, or how closely they resemble. If History, indeed, were turned out of court as a lying impostor, and physiognomical appearance were allowed to go for nothing, Dr Knox's characteristics of races would, on his own showing, be sufficient to prove the complete admixture of races in the English family. His "spatular-fingered" "plodding" "boor" of a Saxon, with all his go-a-head propensities, could, on his principles, have possessed no such adornments as metaphysical or transcendental philosophy, a national literature, or a love of the fine arts and music; and, especially, could not have produced a number of native Poets worthy of comparison with those of Greece and Rome. Such effects, if Dr Knox's "facts" are anything but fictions, and his "arguments" anything but fallacies, must be the result of a mixture of other, say Celtic and Slavonic blood, with that of the original Saxon. Yet this "hybrid" race, which should long since have "died out," is now in the fulness of its energy and world-subduing power! What folly, then, to argue for distinct species of mankind from the very facts which most clearly testify to their essential unity!

CHAPTER XXI.

OBVIATION OF "SCIENTIFIC" DIFFICULTIES CONCLUDED — THE REIGN OF DEATH PRIOR TO THE ADAMIC CREATION—THE MOSAIC ACCOUNT OF THE NOACHIAN DELUGE CONSISTENT WITH ALL WE REALLY KNOW—THE ANTHROPOMORPHIC REPRESENTATIONS OF DEITY, CONSTANTLY OCCURRING IN THE HOLY SCRIPTURES, PERFECTLY COMPATIBLE WITH CORRECT IDEAS OF GOD'S INFINITY.

493. THE next difficulty which comes under consideration is the objection—"That death, as attested by geological discovery, reigned in the earth anterior to Adam's sin; and, therefore, could not be the product of that act of disobedience."

There is, I admit, incontestable evidence that the ordinary processes of nature, decay, and re-production, were constantly going forward, at once in the animal and vegetable world, not only before man's fall, but countless ages prior to his creation. This contradicts the long-prevalent opinion, supported and sustained by Poets' high imaginings, that man's sin originally "brought death into the world," and not only "all *our* woe," but all the woe of every other race of living creatures. Here, however, as in other cases, man has built, not upon the Scriptures, but upon traditionary or received interpretations of them. It is, indeed, plainly declared in Scripture, that "by one man sin entered into the world, and death by sin;"* but the conclusion of the passage wherein the words occur seems to limit the meaning of this "entry into the world" to its effect upon the human race; for thus the Apostle continues—"And so death passed upon ALL MEN, for that all have sinned." Again, when in another place the same inspired writer tells us, that "by man came death,"† he continues, "by man came also the resurrection of the dead. For as in Adam all die,

* Romans v. 12.

† 1 Corinthians xv. 21.

even so in Christ shall all be made alive. But every MAN in his own order," &c. Thus, again, the application of the passage seems to be limited by the context to the *human* race. The real and simple meaning of such passages would appear, then, to be, that for Adam's sin HE AND HIS RACE were visited with death—a doom with whose nature we must suppose him to have been practically acquainted, as an eyewitness of its effects upon inferior creatures, if we are to regard that threatening as one which he could in any degree clearly understand. The *ground* we are told was cursed for man's sake; but nowhere do we read that the inferior animated creatures shared that malediction. Indeed, the wording of the earth's curse would lead us by analogy to an opposite conclusion. It was one of comparative sterility, and the bringing forth of thorns and briers, not the death of a previously perennial vegetation. The vegetation then existing was created for death and reproduction; for it was called into being as the "*herb yielding seed*, and the fruit-tree bearing fruit, whose seed was in itself." And the production of briers and thorn-bearing plants, though it adds to man's labour and distress, supplies food and enjoyment for multitudes of inferior creatures.

494. And are the discoveries of Geology, or of any other Science, at all discordant with the Scriptures in these matters? We seek in vain for any appearance of the reign of death over *man* before the Adamic period. And if it reigned over every other material creature that breathed the breath of life, or possessed any degree whatever of inherent volition, there was no analogical necessity that it *must* consequently have reigned over him, irrespective of the will of his Creator. His appearance on a world which for ages had been preparing for his reception,—a being of erect posture, and possessed of moral and intellectual powers,—formed, perhaps, as great an advance in the state of organic life, as immortality would form over the period of existence assigned to earth's earlier tenants. The simple statements of Scripture would lead us to believe that, in his created condition of purity, man's bodily constitution was either exempted from the law of progress towards dissolution, which belonged to inferior animals, or that there was in the fruit of some "tree of life" an antidote to that pro-

gress—continuing in innocence, and feeding upon which, he might live for ever; or pass out of that into a higher state of being without the separation of body and spirit, which is usually denominated “death.”

495. Nor let it be thought that this is merely a straining of Scripture to suit the discoveries of modern Geology. Opinions but little differing from these were advanced, by men eminent in the Christian Church, ages before it was conceived that the discoveries of Geology would be contradictory to any one of the commonly-received opinions of mankind. “It does not appear to us,” wrote Archbishop King, in his Essay “On Evil,” “of what sort the bodies of mankind were before the fall; and consequently nothing can be argued from thence against the necessary mortality of all terrestrial ones. Further, we should remember that our first parents were naturally *mortal*; but that God covenanted with them for immortality as a matter of favour and upon particular conditions.” Nor, even if such views as these never had been stated or conceived by earlier writers, would the objection sometimes made be a fair one—that, in propounding them, we are bending Scripture to suit the discoveries of Science? Readily does man avail himself, at all times, of every new discovery, to throw light upon any important document, of whose strictly literal meaning there may be any doubt; and why should he refuse to use, or be blamed for using, such aid, in ascertaining the precise meaning of any part of that most important document upon earth—the record of salvation?

496. It is not necessary to enter any further on this question of the general prevalence of death as inconsistent with the statements of revealed religion, because there is really no such inconsistency. Professor Hitchcock, indeed, suggests, that the foreknown “certainty of man’s apostasy might have been the grand reason in the Divine mind for giving to the world its present constitution; and subjecting animals to death.”*

* Hitchcock’s “Religion of Geology and its connected Sciences,” Lecture III. A fuller statement of this view is given by the Reverend Professor in a preceding page: “I maintain that God, in the beginning, adapted every other being and event in the world to man’s character and condition, so that there should be entire harmony in its system. And since, either in the Divine ap-

Another writer, Dr Cumming, has suggested, that all pre-Adamic death was the consequence of the angels' sin.* I am not called upon to say anything against either of these views ; but I hold them to be entirely unnecessary to meet objections against either Revealed or Natural Theology, until it has been shown that death is really an evil to the inferior organic creature, whose actions are irresponsible, whose life is spent in carrying out the impulses implanted in its organization, and "over whom the second death hath no power;"—yea, until it is further shown that the present system of life through death, and re-production from decay, is positively not the one which can impart the greatest amount of happiness to the greatest number of sentient beings. This I am convinced never will be shown. The very system of prey gives room for an enlarged display of Divine goodness, in ordaining that a vast quantity of that which is necessary for the food of others, should possess, until it is wanted for use, the full enjoyment of sentient life. Unconscious that death is the extinction of life, the suffering in the animal at its last moments is confined to one of mere bodily pain. This, too, is usually reduced to its minimum ; †

pointment, or in the nature of things, there is an inseparable connection between sin and death, the latter must constitute a feature of the system of the world, because a free agent would introduce the former. Death would ultimately exist in the world ; and, therefore, all creatures placed in such a world must be made mortal, at whatever period created. For mortal and immortal natures could not exist in the same natural constitution : nor could a condition adapted to undying creatures be changed into a state of decay and death, without an entirely new creation."

* Geology and Genesis.

† There is a beautiful illustration of the truth for which I am here contending, in Dr Livingstone's account of his contest with a lion, at Mabotsa. He says—"When in the act of ramming down the bullets, I heard a shout. Starting, and looking half round, I saw the lion just in the act of springing upon me. I was upon a little height ; he caught my shoulder as he sprang, and we both came to the ground below together. Growling horribly close to my ear, he shook me as a terrier dog does a rat. The shock produced a stupor similar to that which seems to be felt by a mouse after the first shake of a cat. It caused a sort of dreaminess, in which there was no sense of pain, nor feeling of terror, though quite conscious of all that was happening. It was like what patients partially under the influence of chloroform describe, who see all the operation but feel not the knife. This singular condition was not the result of

for by an instinct, demonstrating the benevolence of Him who imparted it, the predatory animals almost universally seize their prey at a particular point of the neck, near the skull, where a wound of the spinal nerve produces an *instant*, and apparently a *painless*, death.*

497. I proceed, then, to the fifth objection—"That the universality of the Noachian Deluge is irreconcilable with certain known 'facts.'"

Under this head, I first take the ground, that the objection cannot be proved to be a valid one; and, second, that even if it were, or should hereafter prove to be, valid, it would in no way affect the authenticity of the Sacred Scriptures.

498. First, the objection cannot be proved to be a valid one. Geology testifies that, at one period or other,—and if its later teachings have not been misinterpreted, that at several distinct periods,—*the whole earth* has been overflowed with water—that all its *stratified* rocks have been deposited in water—and that marks of drift and flood are everywhere apparent on its surface. This is an *a priori* evidence in favour of a universal Deluge. And though, in following out the matter into detail, it soon becomes evident that those "water-marks" upon earth's surface cannot all be referred to a catastrophe so brief, and so comparatively quiet, as the Deluge of Noah, yet the objections would, *a priori*, be more insuperable, if there were

any mental process. The shake annihilated fear, and allowed no sense of horror on looking round at the beast. *This peculiar state is probably produced in all animals killed by the carnivora; and if so, is a merciful provision by our benevolent Creator for lessening the pain of death.*"

* In a little pamphlet entitled "Physical Evil; its Reign and Remedy," published by an anonymous author in the North of England, a suggestion is thrown out of the propriety of killing under the influence of chloroform the animals intended for food. This would but be imitating, in our humble measure, the wise and benevolent Being who implanted the instincts of the predatory creatures; and so implanted them, that they should inflict the least possible pain upon the animals on which they feed. And why should not man thus consider the pain of the creatures which are given for his use?

"The wolf, who from the nightly fold
Fierce drags the bleating prey, ne'er drank her milk,
Nor wore her warming fleece; nor has the deer,
At whose strong chest the deadly tiger hangs,
E'er ploughed for him."

no such water-marks thus universally prevalent. The inquiries where the water was to come from, and what was to be done with it when the work was accomplished, are altogether beside the mark, when it is considered as the accomplishment of His will who formed at first the elements of earth, and air, and ocean. Processes of nature which are now constantly going forward on a more limited and gradual scale, the processes of upheaval and depression, and re-depression and upheaval, both or either, or an entire or partial exchange of places between sea and land, might readily accomplish all.

499. The objections brought against the capacity of the ark, too, appear to be almost, if not equally, as unreal. Dr Cumming shows * that this vessel—300 cubits, *i. e.* 450 feet, long, and 50 cubits, *i. e.* 75 feet, broad—was of 32,000 tons burden. "It would have contained," says he, "18,000 men, and provisions for them for eighteen months. Buffon has stated that all the four-footed animals may be reduced to 250 pairs, and the birds to a still smaller number; consequently the ark would have held five times that number, and more than five times the food required for twelve months for them." Buffon is not, indeed, a sufficiently modern or correct authority on such a subject; but the margin left appears wide enough for the admission of all really distinct species whose presence in the ark was necessary for the continuation of their race;† though, even if it were not, there can be no insuperable objection to a fresh exertion, in particular instances, of that Creative power which Geology testifies has been repeatedly called into operation.‡

* "Evidences of Christianity," p. 201.

† Swainson gives the number of distinct mammalia as 1000, and of birds as 6000. These would require an ark of nearly the proportion described. As regards the objection, that the living tenants of fresh water would have become extinct by such a salting of their native element, it may be replied, that if these had died, their spawn might have floated uninjured on the waters, or been preserved around stones and rocks in secluded places in river beds of the newly upheaved lands.

‡ The most elaborate, and by far the most convincing, argument *against* the universality of the Noachian Deluge which I have met with, is contained in Hugh Miller's "Testimony of the Rocks." But the most logical of his arguments are based upon the assumption that there has been no creation since

500. There have, I know, been two objections brought forward against the universality of the Deluge, which, at one time, seemed irrefragable. First, the existence of trees in the equatorial regions of Africa and South America, which, by the known method of ascertaining the age of exogenous trees, are shown to be of an antiquity which goes farther back than the date of the Deluge. Second, the cones of cinder, and other volcanic products, in various parts of the earth, and among others, in the province of Auvergne, South of France, accompanied by apparent evidences of their having been there prior to the date of Noah's Deluge; which cones of loose and light material would, if they had been exposed to the action of a rush, or even a moderate force, of water, have been inevitably washed away.

501. I treat these difficulties as altogether different from the others, because, to my mind, facts which seem to testify that an occurrence *has* not been, are much more forcible than mere suggestions that it *could* not be. I say, these objections *at one time* appeared irrefragable. The first has since been removed in the simplest and clearest manner. A specimen of the Boabab, a stupendous tree of tropical Africa, was subjected to the process which scientific men of the best ability had invented, (the cutting out of a section to count the rings or layers which the trunk had formed,) and its age was stated to be 5232 years: and a specimen of the Taxodium, an American tree, now growing in the churchyard of Santa Maria del Tesla, near Oxaca, in Mexico, was pronounced by De Candolle, "to go back certainly to the origin of the present state of the world." It was argued, then, with much apparent force, that these trees would not now be living, if they had, some 4000 or 5000 years ago, been covered with water for a hundred days. The answer, like the discovery of gravitation, was brought out

Adam, because the present geological period is the sabbath in which God is resting. Admit this, and I see no escape from the conclusion that the Deluge was only a *local* one, his beautiful description of which is a very probable "guess at truth." But, as I rather agree with the views of Dr Chalmers than fall in with this "period-day theory," I see no objection whatever to the fresh exertion of Creative power; and, therefore, can find, as yet, no insuperable objection to the universality of the Deluge of Noah.

through an almost accidental exercise of the faculty of observation by a philosophic mind. Dr Carpenter, when residing in the West Indies, discovered that tropical trees shed their leaves two or three times a year; and recurring to the fact that the distinct layers of the wood in a tree's trunk are formed by the check which vegetation receives by the shedding of the leaves, discovered that the *years* which have been given as the age of the Boabab and Taxodium, should rather have been given as *epochs of vegetation*, and that their age must be reduced from the period assumed by more than one half.

502. The removal of *this* difficulty, a difficulty which seemed to be sustained by a law of nature, on whose invariable validity we might rely with the utmost confidence, will naturally suggest the possibility of the other being also as clearly removed. The extinct volcanoes of Auvergne and Dauphiné are most relied upon by objectors, because it is considered that, had *they* been active since Europe was peopled, some record of the catastrophe would have been handed down. Fullom argues, that though none of their seven craters have sent forth an eruptive stream during the past 2000 years, this is no proof that they may not *all* have been in eruption since the era of the Deluge; for it is not necessary that there should have been such an interval between the bursting forth of every crater, since all at once may have gone into eruption during the convulsions attendant on that great catastrophe. Dr Hamilton (*vide* "Pentateuch and its Assailants") suggests that, possibly, the regions alluded to were volcanic in a former geological period, and afterwards sub-marine volcanoes, and that when upheaved again, on the subsiding of the Deluge, they resumed their action; and though in some places rivers have worn their way through the masses of rock lava by which they are surrounded, the channels of these rivers might belong to a former period of the earth's existence, before either the submergence or the re-elevation of the district at the subsiding of the Noachian Deluge. This view is somewhat confirmed by the researches of M. Eli de Beaumont, who has shown that the last of earth's important convulsions, by which what he calls the "system of *Tenarus*" was upraised, was post-Adamic, its most probable

date being that of the Deluge. To this catastrophe he ascribes "the elevation of the Somma, of Stromboli, and of Etna, all of which would have been totally deranged, if they had existed before the catastrophe of the principal Alps also the volcanic formation of Auvergne and the Vivarais, the ejections from which have issued from fractures and fissures produced by some of the *antecedent* catastrophes."*

503. And the silence of History on this subject has been too readily taken for granted. No pagan Annalist, indeed, has recorded the eruptions of these volcanoes; but we have records perhaps more worthy of dependence. The Deluge of Noah could not have washed away their "cones of loose and light material," if their last period of activity was posterior to that catastrophe; and it *appears* to have been in the years 458—460, when both Auvergne and Dauphiné were convulsed by the accompanying earthquakes, and the face of nature changed in their immediate neighbourhood. I have previously adverted to the value of commemorative rites in testimony to historic facts; and the *Rogation Days* after Ascension Day, which still remain in our Church-ritual, are a commemoration of this series of catastrophes: for they were then instituted by Mamertus, Bishop of Vienne, with a view to deprecate God's wrath. The account is given in a letter of a *contemporary*, Sidonius Apollinaris, and a Rogation Homily of Alci-mus Avitus, the next Bishop of Vienne, is still extant:† while their quietness since that period may be accounted for by the laws of volcanic action, which seem to require (at least on earth) proximity to water.

504. Thus the second apparently irrefragable objection to the universality of the Deluge *seems* to be removed. And,

* Lardner's "Museum of Science and Art."

† Biblioth. Patrum Max., vol. vi. p. 1008, and vol. ix. p. 591. For this interesting fact I am indebted to the *Horæ Apocalypticæ* of the Rev. E. B. Elliott. It is only right to state, that, when I wrote to Mr Elliott for further information, which he furnished in the kindest manner, he seemed to doubt (falling in with the views of Dr John Pye Smith) the propriety of the geological use he had made of this fact. But, as later researches of the most eminent Geologists have tended to confirm his printed views, he must excuse me for believing that he was probably right where he fancies he was wrong.

even if we reject the united testimony of Geology and History for a mere *may be*, that M. de Beaumont was mistaken in concluding that the last throwing up of these volcanoes was so recent, and a *may be*, that Sidonius Apollinaris referred to, and our Rogation Days commemorate, some other convulsion, rather than *their* last eruption—this “*may be*” can be used on both sides of the question; and it *may be* that the probable effect of atmospheric influence during 4000 years has not been duly weighed. Before that influence even granite crumbles; not to mention the softer stratified rocks which everywhere, especially in European latitudes, testify to its disintegrating power. And surely it is *possible*, that, though the cones of loose and light material existing on the tops of these, are *now* too light and loose to bear the action of a rush, or moderate force of water, they might not be so loose and light before they had been subjected to the wear and tear, and disintegrating influence, of atmospheric changes, during the past four thousand years.

505. But I said that, even if the universality of the Deluge were irreconcilable with known facts, the authority of the Scriptures would not be invalidated thereby. Such is the idiom of the Hebrew language, that universal terms are commonly used in a limited sense; as, “all” for “many,” and “the whole” for “a large portion.” The word which in the Mosaic account of the Deluge is translated “earth” might also be translated “land” or “region.” This is its undoubted meaning in numerous other passages of Scripture; and perfectly consistent would the whole account remain, if, as Dr John Pye Smith has suggested, it only related to the flooding of Western Asia, a large district of which, even in the present day, lies much below the level of the sea; which, as surrounding the supposed site of Eden, might probably be the only region inhabited by the ante-diluvian race of men. Such opinions were formed, and defended, by eminent Christians, merely from the construction of the Mosaic narrative, in times when fact and science *seemed* everywhere to testify against them.* All that is required to sustain the integrity of the

* It is enough to mention, as among these, the names of Bishop Stilling-

narrative is the universality of the Deluge, as far as the race of man is concerned. To the portion of the world inhabited by him, St Peter, writing by inspiration, would *appear* to confine the catastrophe, when he tells the Churches of Asia, that the flood was sent to destroy "*the world of the ungodly.*" That it was thus far universal, all history and all tradition give their testimony. Not only among European, Asiatic, and African nations, do we find traditions of its existence, as the first event to which man's memory reaches, but they are found also among the Arctic Indians—in North and South America—and in the South Sea Islands—while Mexico and Peru, besides such traditions, present us with emblematical pictures of that great event. The evidence, too, on this subject, as remarked by Dr Redford,* is "both universal and complete:" the harmony in the traditions of all nations, in all parts of the earth, is such as could have arisen only from the fact itself. We find Chaldeans, Phœnicians, Assyrians, Medians, Persians, Druids, Greeks, Romans, Goths, Hindoos, Chinese, Burmese, Mexicans, Peruvians, Brazilians, North Americans, Taheitians, Sandwich Islanders, Western Caledonians, all preserving, in their mythologies or their histories, the principal events recorded by Moses. There are no conflicting traditions among either the ancients or the moderns. "They all embody but one story." It is not merely of a Deluge that the whole race of man thus testifies. Bryant, in his "Analysis of Ancient Mythology," has clearly shown that this testimony is borne to *the Deluge of Noah*. Carried forth in memory by the children of that Patriarch, in all their subsequent migrations and dispersions, the impress of that event re-appears in their superstitions, their mythological rites, and significant observances; and bears, in that impress, distinguishing marks of its true original, in the constant accompaniments of allusions to the ark,†

fleet and Matthew Poole. See also, further, Smith's work just referred to, at page 209, &c.

* "Scripture Verified," p. 113.

† See Bryant's "Analysis of Ancient Mythology;" Vernon Harcourt's "Doctrine of the Deluge;" Faber's "Pagan Idolatry;" Hamilton's "Pentateuch and its Assailants;" and Redford's "Holy Scripture Verified;" as, also, the ninth of Wiseman's "Lectures on the Connection between Science and

the dove, and the rainbow—the great accompanying features of the Noachian Cataclysm.*

506. I come now to the last difficulty, or objection, to be noticed under this head: “That the Anthropomorphic (or ‘human-form’) representations of Deity, constantly occurring in the Holy Scriptures, is inconsistent with any correct ideas of God’s infinitude.”

Man, while dwelling in a material body, seeks naturally after the apprehensible, the visible, and the tangible. Even in a high state of mental cultivation, there are many who are unable to appreciate an abstract idea; and among earlier and less cultivated races, it must have been generally difficult, if not impossible, to excite any tolerably correct notion of infinitude. Conceptions bearing some analogy to immensity might be awakened by the successive steps of an argument, or the successive phases of a metaphorical illustration; as, “*Whither shall I flee from Thy presence? If I ascend up into heaven, Thou art there: If I make my bed in hell, Thou art there: If I take the wings of the morning, and flee into the uttermost parts of the sea, even there shall Thy Spirit follow me.*” A nearer, though less vivid apprehension of the truth, might, perhaps, be obtained from the declaration that “God is everywhere.” But beyond *everywhere*,—i. e. beyond every locality and everything,—beyond the bounds of the visible creation, the thoughts, of the unlettered seldom, if ever, pass.

507. Thus, also, with eternity. In its abstract completeness, it is wholly beyond the apprehension of the rude and barbarous, Revealed Religion.” Perhaps, however, there is not a more marked and peculiar evidence to be found than the famous Apamean medal, struck in the reign of Philip the Elder, representing a square box floating on the water, with a man and woman seen inside, and the usual accompaniments of two birds and an olive branch, and the word ΝΩΕ (ΝΟΕ) inscribed upon the box. The city of Apamea was formerly called Kibitis, or “the Ark.”

* As regards the date of this event, the remarks of Baron Cuvier are striking and appropriate: “Is it possible that mere accident should afford so striking a result as to unite the traditional origin of the Assyrian, Indian, and Chinese monarchies to the same epocha of about 4000 years from the present time? Could the ideas of nations, who possessed almost no natural affinities, whose language, religion, and laws had nothing in common—could they conspire to one point? did not truth bring them together?”

who would naturally regard it as an indefinite extension of time. Yet something analogous to a true conception of the idea may be awakened in their minds by the successive phases of a figure; as, "*the same* yesterday, to-day, and for ever;" or, "Thou art *the same*, and Thy years shall have no end." Thus it is, too, with all the other attributes of the Infinite. Uncultured man has no idea of analyzing power into potentiality and act. He conceives of it only as he sees it exemplified in action. And while he would greet with a vacant stare the Philosopher who should discourse to him of Infinite potentiality operating by means invisible to us, and by its influence upon second causes producing the effects which it desired,—his soul would grow warm, and his intellect be awakened, by a representation of God weighing the mountains in scales and the hills in a balance; calling out the hosts of heaven by their names, or claiming them as the work of His fingers; grasping the thunderbolt, or riding upon the wings of the whirlwind. Nor will the heart of the most cultivated, notwithstanding their more correct intellectual ideas, fail to respond to these *natural* feelings of their *ruder* brethren; for while cold and, perhaps, inattentive, to the most logical and forcible reasonings connected with metaphysical or spiritual abstractions, *they* also warm into enthusiasm when something *tangible* is presented to their apprehension; and join, heart and soul, in a song of praise and triumph to Him, who

"With His own right hand and His holy arm,
Hath gotten himself the victory."

Attributes more strictly moral in their nature, are still less easy to grasp, without the aid of those analogical associations with which such attributes, in created things, are usually connected. Of justice, mercy, tenderness, compassion, or benignity, as abstract principles, even the most intellectual can attain to no adequate conception: and to the rude and unlettered they cannot be represented *at all*, except by analogies drawn from things that are seen and tangible. The preacher of transcendentalism would be to them but as a babbler of things they could not understand: while the man who spoke to them of God as "a father pitying his children,"—as One whose "eyes are ever

on the righteous," and whose "ears are ever open to their cry,"—as One whose love to His people is such that He hath "graven them upon the palms of His hands," or His care of them such, that He who toucheth them, "toucheth the apple of His eye,"—he who speaks of God thus touches a chord which will vibrate with a feeling truly intense, and call forth gratitude and adoration.

508. We have a yet further illustration of man's attachment to the visible and the tangible, in his almost universal tendency to idolatry. From the earliest ages he panted after, and desired to *see*, God; and, as he gradually lost sight of the primitive truth of the essential spirituality and invisibility of the Divine Being, this tendency seemed to possess all the force of a moral instinct. There appears to be something in his moral nature which demands an apprehensible object of worship—something nearer than an Infinite Spirituality, or an Infinite Abstraction. He forms visible objects and representations to assist him in his worship; and these, in course of time, become objects of worship themselves. And when, even without these, he lifts up his thoughts, or addresses his prayers, to the Deity, the mind usually forms some image or conception of a visible Being, and directs its thoughts to some ideal locality, under a sort of vague notion, or half apprehension, that there, in an especial manner, He resides. Yea, this he does in the midst of *scientific* and *Gospel* light, although the Book of Revelation expressly declares that "*God is a Spirit*" (*i. e.* not material); that He "*fills heaven and earth*;" that "*in Him* (*i. e.* in His infinite presence) *we live, and move, and have our being*;" that "*He is the King eternal, immortal, invisible—who only hath immortality, dwelling in light which no man can approach unto—whom no man hath seen, nor can see!*"

509. For such a creature, then, as man, how proper, how applicable, the figurative language which is used in Scripture, in connection with the Deity,—Anthropomorphous though it may be,—language which represents the exercise of God's attributes, both natural and moral, by those actions which are most analogous to them in the human creature. When the exercise of His judgments is spoken of as His wrath (the *wrath* of the *Merciful*) waxing hot, or the contrariety of sin to

His nature is represented under the figure of His repenting that He had made the creature who had committed it; or when His justice upon the wicked and impenitent is portrayed in such language as, "*When ye spread forth your hands, I will hide mine eyes from you! yea, when ye make many prayers, I will not hear!*" how strong, how vivid, is the impression conveyed to the senses and the intellect, how much more powerful than a simple declaration of the principle would evoke! And yet this forms the main, yea, the only, ground of the difficulty, or objection, so much enlarged on by "Rationalists" and "Religious Progressists" in the present day—"that God, in the exercise of His attributes, is represented as possessing a human form, which is inconsistent with any correct idea of His infinitude." Such an objection, then, is tantamount to a declaration that Revelation should have been made in language unintelligible to those to whom it is vouchsafed, and, consequently, have been something scarcely worthy of the name.*

510. But there is yet another reason for the use of such language in connection with Deity, besides its adaptation to the nature of man. Infinitude, in its strictest and most abstract sense, is an attribute of God; but, perhaps, it may be said to be only strictly and properly so of *abstract* Deity—OF GOD AS IN HIMSELF HE IS. And the Scriptures reveal Him not only as He exists in His own essential nature, but also as He exists in relation to His creatures, as Creator and Preserver. To make a finite Universe, however vast, God must have *stooped* from His immensity; for every exertion of the Infinite, accordant with His nature, must have been, like Himself, immense, eternal, and immutable.† And the Scriptures represent the Second Person of the Trinity as thus *stooping*—as coming forth from the bosom of the Father to manifest Deity by outward acts of Creation. They speak of Him as consti-

* Those pseudo-Philosophers who affirm that a Revelation ought to have been written in the most dignified style, and in language the most abstractly correct, in order to show itself "*worthy of a God*," had better prove the propriety of their views by practice, and compose *first books for children*, in the most dignified rhythm and unintelligible words, to convince *them* that the composition is "*worthy of a man*."

† See Professor Kidd's "Views of the Trinity."

tuting duration, (*αἰῶνας ἐποίησεν*), as “the beginning of the creation of God,” “the First-born of every creature;” forming, as it were, a link between the spiritual and material, between God and Nature; as “the Lamb slain before the foundation of the world,” dying, as it were, to His own essential glory, to assume another glory as Messiah, the Head of the visible Universe, set up from everlasting, God manifest, Creator, Redeemer, Ruler, and Provider.

511. Taking, then, this further view of God, not only as He exists in himself, but as He exists in relation to the outward Universe, we see another exhibition of the appropriateness of Anthropomorphic representations; and also a reason for, and an answer to, those instincts of the human mind which seek for a visible and apprehensible Object of worship, involuntarily shrinking from the abstract Infinite. And, as scene after scene in the great drama of creation and Providence is enacted on the stage of the Universe, the direct applicability of such Anthropomorphous language becomes more clear and definite; however a John Stirling may object to such a representation as Moses receiving the stone tables of the Law from the hand of God—“*the hand of God*,” [to quote his sneering expression,] “*four fingers and a thumb!*” For that God, that Second Person of the Trinity, who thus stooped to become the Creator of things finite, in the after-actings of His providence frequently assumed the appearance of the human form, “talking face to face” with His chosen ones. And at length, in the great act of Redemption, He took upon Himself, not only the form, but the material body, of His creature Man. As Man, He intercepts man’s longings for a visible God; and standing before, and hiding, every secret altar of the heart’s idolatry, claims our worship as the Manifestation of Deity. As Man, He became obedient unto death, that He might redeem death’s bond-slaves from its prison, providing thus an immutable standing-place whereon the mutable creature may rest in security for ever, and utter the joyful exclamation,—“Oh! death, the Death of death hath by death redeemed death from death!”

511*a*. Such, then, as God *must be*, if the profoundest deductions of reason can approach to a true estimate of His nature, we find by the declarations of Holy Scripture that such

God *is*. Instead of these Anthropomorphous representations being an evidence of a want of true knowledge of the Deity on the part of the inspired writers who made them, they show that they, or the Spirit who inspired them, while fully acquainted with the principles and instincts of the human heart, knew God, not only as He is in His own nature, to which numerous passages will bear testimony, but also as He is in relation to His creatures. They plunged into depths to which unaided philosophy never could have penetrated; they soared to heights which mere human intellect never could have reached:—tracing out lines of wisdom, at which the startled mind, feeling its native littleness, gazes with awe and admiration; and evoking light in whose bright beams the radiant sun grows pale.

CHAPTER XXII.

DIFFICULTIES RAISED BY “SPIRITUALISTS,” “RATIONALISTS,” AND “RELIGIOUS PROGRESSISTS,” MET AND OBIATED—SCRIPTURE HISTORY NEITHER MYTH NOR ALLEGORY—ITS MIRACLES NOT TO BE ACCOUNTED FOR BY MESMERISM, NOR ITS PROPHECIES BY CLAIRVOYANCE.

512. WERE the history of Scepticism to be clearly written, there is nothing, perhaps, which would exhibit so Protean a capacity. Its belief is of the most changing description that well can be imagined—its consistency, if any it possesses, being only in what it *disbelieves*. In the last Century there were “Rationalists,” or “Naturalists,” as they then were termed; men of strong powers, possessing some apparent honesty of purpose, who rejected the Holy Scriptures on two distinct, and, as it appeared to them, sufficient grounds. The *first* of these grounds was the one which formed Hume’s position in his famous “Essay on Miracles:” that *no* evidence would be sufficient to authenticate a miracle or departure from

the ordinary course of nature ; as it is more probable that men should lie, than that nature's laws should be suspended. The second was, that the evidence for the existence of such a Divine Person as Jesus of Nazareth is altogether insufficient. There was, at one time, a sort of consistency in upholding either or both of these positions ; and they were maintained with a pertinacity and skill only surpassed by the learning and the critical acumen that silenced them. Strange to say, each of these positions has, in turn, been abandoned by most of the English Rationalists and Infidels of the present age—some repudiating the one, some the other ; and very few venturing to assert the authority of both. Often calling themselves Christians, as a sort of propitiatory offering to the purity of Christian morals, they yet reject the Christian system as one connected with supernatural agency, agreeing with their predecessors in nothing but their *disbelief*.

513. To all who have any regard for the nature and authority of evidence, the untenableness of Hume's theory is now sufficiently apparent. He based his notions of the impossibility of the Scripture miracles on the impossibility of *any* departure from nature's fixed and ordinary course. The advance of physical Science has shown that he was simply mistaken. The stony records of the earth—records of ages which it was supposed had passed and left no sign of their existence—bear witness to successive creations and miracles, *interferences with*, and *departures from*, the *ordinary* course and laws of nature.* Their evidence very few men, in any degree acquainted with the force of scientific facts, will venture to dispute. And now, the Sceptic of the Nineteenth Century, ready to believe in anything rather than the plain testimony of Scripture, has shifted his position. He asserts that the Scripture "so-called" miracles *may be* substantially true, but *only the effects of mesmerism*—that the prophecies *may have been* uttered before they were accomplished, but by *persons under the influence of clairvoyance* ; or that miracle, prophecy, and history alike may be an outer shell enveloping some hidden truth,

* Strange to say, notwithstanding the accumulated evidences of Geology, Mr Atkinson still rests upon Hume's untenable position.

which shell must be removed before that truth can be obtained or understood.

514. Now, let us closely mark the result of these admissions, for they are not unimportant. They clearly demonstrate that the obstructions to belief did not rest in the facts objected to, but in the doctrines which those facts were calculated or intended to enforce. Occurrences which it was so long contended that history, tradition, and oral testimony entirely failed to substantiate, it is now allowed, may certainly have taken place, provided we do not consider them as displays of super-human power. "No such person as Jesus Christ," said the Atheist of the last age, "ever had any existence. His whole life and miracles are inventions of fraud and falsehood to serve the purposes of priestcraft." "Jesus," gently insinuates Mr Atkinson, one of the leading Atheists of the present age, "was endowed with wonderful mesmeric power, a clairvoyante and a thought-reader from His birth."

515. Does, then, the withdrawal of Divine power from the scene alter the nature of the evidence which history and tradition have long given, and render that oral testimony, which before was perfectly incredible, now sufficiently correct to be relied upon? Is the nature of the evidence by which a fact is substantiated entirely changed, because that fact is viewed in a different relation to extrinsic things? Oh, no! if the evidences for the verity of Scripture be sufficient to attest its truth, provided its "prodigies" be the result of natural causes, those evidences lose no strength, but gain superior force, when such "prodigies" are viewed as the exercise of Almighty power, for the accomplishment of a known and definite purpose. And the Rationalist, by this shifting of his ground, has tacitly acknowledged that his difficulties are not intellectual, but moral; that there is no flaw in the testimony, but a flaw in his own will; that it was not the lack of evidence which caused him to reject the Scriptures, but an opposition of heart to the doctrines and the precepts they inculcate.

516. The "religious ideas" of our English and American "Rationalists," "Spiritualists," and "Religious Progressists," at once of Fox and Parker, of Foxton and Francis Newman, of Syme, Maccall, and Stirling, though varying in degree, bear a

strong similarity in their nature. Ostensibly founded on the deductions of "mental philosophy," or the results of "historic criticism," they nevertheless seem to have been borrowed and "developed," or elaborated, from our continental neighbours of mixed German and Slavonic race. Strauss, for the most part, sowed the dragon's teeth from which these "myrmidons" have sprung into existence. That Mythogogue gathered together all the alleged discrepancies which formed such needless stumbling-blocks in the way of the elder Deists, the principal ones as old as Celsus and Porphyry, and most of them cleared up, again and again, long before they were thus re-stated. To these he added others of his own, pointing out disagreements where the perverseness of the human will alone could see them. The absence, in historic narratives, of connecting links which were not wanted for the object those narratives were intended to serve, and which Divine wisdom (perhaps for trial of our faith) had not seen proper to supply—errors of omission and commission on the part of transcribers, to whom no promise of inspiration was vouchsafed,* with petty quibbles, and grave,

* The possibility of transmitting errors by transcription cannot, perhaps, be better illustrated than by the transmission of printed errors amid the light and knowledge of the present Century. In the first copy of Byron's "Curse of Minerva," which fell into my hands about thirty years ago, was the couplet—

"Frown not on England, England owns him not.
Athens? No! the plunderer [or rascal] was a Scot."

Satisfied that the word "Athens" was a misprint, because it made the sense uncertain, and the line a syllable too short, I examined for years every copy of every edition I could get access to, but still found it the same: and it was not until this Chapter was being written, when, recollecting the circumstance, I referred to Moore's corrected edition, that I saw it printed, as I had always conceived it should have been—"Athena!"

A more striking error than this however came under my notice in 1860; one in the English version of the Scriptures themselves. Having occasion to refer to Zechariah xi. 17, I observed a difference in the reading between the Concordance and my copy of the Bible, which awakened my curiosity, and led to further investigation. By this I discovered, that some time in the latter part of the 18th century, the word "idle" was inadvertently altered into "idol;" every copy of the Bible which I have examined printed since 1750 reading *idol shepherd*, every copy previously printed *idle shepherd*. The original will bear either translation, the root of the word being *vanity*. But this does not alter the fact

pointless jests, furnish the staple of his "Life of Jesus," who contends that Jesus *never* lived; but classes the Scriptures which declare His doings with wild mythologies and poets' dreams. This was a windfall for our English Sceptics, who saw, or thought they saw, some new positions wherefrom to hurl their missiles at the ever-conquering foe. And now they stand forth as a class of men in wisdom deeply versed, who, rejecting the supernatural as only an excrescence, maintain the *purity* of the Christian faith.

517. Of the myth and allegory theory—the earliest form in which this spurious Infidelity was ingrafted on the Christian stock—we may, perhaps, obtain the clearest view by turning to the literature of the country in which it took its rise.

Strauss represents Christianity as a sort of condensation of a popular feeling into the shape of historic facts. He derives the Jewish idea of a Messiah from Old Testament history and prophecy. And regarding the Messianic notions as widely prevalent at the appearance of Jesus of Nazareth, (having been in solution for some hundreds of years,) conceived, that, as soon as He had appeared and passed off the stage, those notions became crystallized around the few facts of His historic life, and formed the myths from which the Gospels were developed.

518. Far from consistent in anything but his opposition to "popular Christianity," in another place, the same author teaches that Christ is not an individual, but an *idea*, that is to say, *humanity*. He bids us behold in the human race the God-made man, the child of the visible virgin and the invisible Father—of matter and of mind. This "*idea*," however, is rather too transcendental for the matter-of-fact minds of our Anglo-Saxon Sceptics, although they can believe in anything as the meaning of Scripture language, rather than that which seems to be its plain and obvious sense. Thus many of them regard Science as a "revelation," and reason as an "inspiration:" and, the better to accustom us to such "ideas," they also speak of the *seed* as a "prophecy" of the future plant, of all truth as "sacred," and all knowledge as "divine."

519. In general, however, the views of this Hegelian school that errors can thus be unintentionally made and transmitted, even in documents which are watched with the most jealous care.

of Christian Sceptics, seem less to accord with the transcendentalism of Strauss than with the more palpable dogmas set forth in an anonymous work published at Helmstadt,* with the professed object of vindicating Scripture from the suspicions of those who are offended at miracles: a work with many of whose views the "Religious Ideas" of Mr W. J. Fox are strictly identical. The argument of the author proceeds on the assumption that every religion must have a mythology: and that the history of Christ and His miracles are a mythology by which the salutary moral truths of Christianity are recommended to those who would not have received them without this dress. He urges, that we must judge of ancient writers according to the spirit of their age; as they *must* lend themselves to the barbarous notions of the times in which they lived. He contends that every religion must have attractions, and that in the Scripture the prodigies we find there are put in for this purpose,—sagely arguing that although we had better leave things as they are for the vulgar, who must have something external to rely upon, yet Divines should examine and find out the truth. He modestly suggests, that we see in every religion many mythi of the generations, incarnations, and apparitions of the gods; and that they who call Mahomet an impostor, and Zoroaster mad, who laugh at the story of Buddha's generation from a virgin who conceived him by a rainbow, or at Mahomet's discourses with Gabriel, &c., should not be angry if people examine the stories of Enoch, Moses, &c.; or put *the greatest part* of that which is related of *Jesus and the Apostles* into the class of fables. Moreover, he lays it down as an indisputable fact, that the *real* religion of Christ is *rational*: but that when He found men could not be driven from their vices otherwise, He began to assume a supernatural authority, and play the part of a Prophet; and, afterwards, took up the character of Messiah, because some of His admirers thought He must be that expected Deliverer.

520. What right these mythic and allegorical dreamers have to the name of *Christian*, or even, *par excellence*, to that of *Rationalist*, only themselves, perhaps, will ever be able to

* "*Vindiciæ N. T. Scripturarum oppugnatarum ab iis, quibus Mythi et Prodigia offensioni sunt.*"

discover. The mistaken position of the elder Deists—that Christianity was altogether a lie, or that our Lord was an impostor and a cheat—seemed really *rational* in comparison with these mere hybrid absurdities. An insurmountable “internal” difficulty seems to meet us at the very threshold of their temple. It is, how to distinguish between the precious and the vile, the fable and the truth, seeing the same evidence substantiates both. The dictum of Hume, Strauss, and Atkinson, that “a miracle is impossible,” provides, it is true, a touch-stone by which to try them, furnishing as a means of analysis the supposed axiom, that “whatever is natural, and not contrary to our experience, *may* be true, but whatever is supernatural *must* be false.” But here, independently of the modest assumption, that “*our*” experience is the correct measure by which to test all the occurrences of the Universe, we meet with another and a far more startling difficulty. The same argument, or rather the same assumption, would give Geology the lie, dissolve into thin mist the substantial strata of the earth, and transport their indelible records, tangible and apprehensible as they are, into the region of myth, fable, and allegory. And are we prepared for this also, in order that, on consistent grounds, we may refuse our assent to the testimony of the Scripture witnesses?

521. Their writings artless and unadorned, relying, as it would seem, on their own consciousness of the truth of what they wrote, the authors of the sacred narratives studied no artifice, and used no argument, to enforce the belief of what they uttered. In a style of simple dramatic narrative, the last that impostors would have chosen,—because one in which falsehoods could most readily be detected,—they related incidents of which, for the most part, themselves were cognizant; and seemed to challenge criticism. And criticism has done its best, and done its worst; and left their simple statements better authenticated than those of any other historic writings in the world.*

* There is no evidence so full, so appropriate, so conclusive, for the genuineness of the works of Herodotus, of the “Annals” of Tacitus, nor even of the “Commentaries” of Caesar, as there is that the books of Scripture were written by those to whom they are attributed.

522. He who, after a close examination of their contents, could suppose that the Epistles of St Paul were not real letters to the Churches to which they are ostensibly addressed, might not be convinced by all the laborious researches of a Lardner or a Paley. But if he finds the Scriptures insufficient to challenge his belief, he has a fact to account for, which, on the supposition that their narratives are myths or allegories, requires a far stronger faith than their reception as simple truths would demand—I mean the early spread of Christianity.

523. If the Gospels were merely fables, myths, or allegories, what are we to do with all the facts which were incontestably antecedent to their publication? Before they appeared, Christ had gained tens of thousands of friends, and the success of His cause had raised up many powerful enemies. His religion had penetrated every part of the Roman empire in the East, and was pursuing a triumphant course of conquest, unchecked even by the persecution of its confessors, before the written records of His life were published. If the contents of those written records embodied the truth of God, and power Divine accompanied the preaching of the “Gospel,” then this historical fact is readily accounted for. If the apostles themselves were cognizant of the *truth*, and impressed with a deep sense of the *importance* of what they promulgated, then can we see good reason for their activity and heroic self-devotion—toiling unceasingly, and “*enduring the loss of all things*,” that they might confer inestimable benefits on their fellow-men. And if the facts and doctrines they taught were applied to the hearts of their hearers by an energy Divine, inducing a conviction with which rhetorical power and logical demonstration can bear no comparison, then can we account for the fact, that, in the earliest ages of its promulgation, Christianity had extended its dominion over the greater portion of the known world. But how are we to account for these things on the supposition that its miracles were myths, its histories fables, and its great essential truths dogmatic allegories? Was force employed? It *was*—to stop its progress. Was rhetoric? It *was*—to prove its folly. Did it advance the temporal interests of its votaries? It offered them a crown—of martyrdom. Did it minister to the gratification of their passions? Nay, rather, it denounced

the gratifications they had hitherto enjoyed. Did it foster, then, the pride of the heart in its stoicism or asceticism, raising up its professors above the common herd as worthy of the favour of the Highest? Nay, it cast down the pride of the heart to its very foundations, declaring all alike to be guilty and undone, and worthy of nothing but everlasting punishment. Did it ingraft itself on the superstitions of mankind, and insinuate itself into the heart and affections by agreement with the myths and traditions of past ages? The Jew, who expected a temporal Messiah, and the Gentile, whom it denounced as a heathen, characterizing *his* myths as fables, were alike opposed to all its doctrines and its teachings. The religion of the "crucified Malefactor" was "to the Jews a stumbling-block, and to the Greeks foolishness;" both alike revolting, as do their successors in the present day, at the thought that they, righteous men! should need a vicarious sacrifice for sin.

524. And yet, against such odds as these, Christianity went forth on its triumphant way—conquering and to conquer. And against such odds as these, if we are to believe the wild chimeras of Strauss and his Anglo-Saxon imitators, men were persuaded that their fathers, yea, themselves, had witnessed "prodigies" which never occurred—miracles which never were enacted!—that some of them had seen, in the destruction of Jerusalem, the fulfilment of prophecies which they were induced to believe were then kept, and had been kept for thousands of years, in their own custody, and in the jealous custody both of their friends and of their bitterest foes, but which really never had been uttered!—yea, more, that in their rites and observances, they perpetuated the remembrance of events which a portion of them could most distinctly recollect, but which never had any actual existence!*

* "If we are constrained, by intellectual doubts and difficulties, to admit that the main tissue of the Gospel narratives is fictitious, or, at least, incapable of being proved satisfactorily to our unbiassed judgment, and wholly untrustworthy as a manifestation of God to man, then must we needs adopt the conclusion that, in the course of God's providence, and as an important feature of His moral administration, the most powerful spiritual force of which the world has hitherto had cognizance—that which has done most to rouse man's spiritual nature to self-consciousness, and to give most active play to its faculties and

525. The man who can believe all this, has surely no reason to reject the Christian system on the ground of the insufficiency of its evidence. The only marvel is, that he can find any resting-place except in some new phase of idealism—holding the material Universe itself to be a myth, a vision, or an allegory.

526. If we come down to a later period, in the latter half of the second century, we find circumstances quite as extraordinary. The whole Roman world is filled and agitated with a new element in the social system, which, while it changes the opinions of vast masses of mankind, elevates their character, and raises the standard of morals. Men called Christians, pervading every rank in society, and every department of the State, though among the best and most peaceful of citizens, and obedient in all things to the *civil* commands of their rulers, yet refuse to disown their allegiance to a higher Power—a Ruler whom they consider to be above all earthly potentates. The crisis comes. Not merely civil obedience, but a renunciation of their allegiance to Christ is commanded; and the command is enforced by penalties, by torture, and by death. Under these circumstances, thousands, and tens of thousands, voluntarily, cheerfully, submit to the penalty as the alternative of denying Him whom they believe to be their Lord and Master. Is it natural to suppose they would have done so in support of some abstract principle, or some mere matter of opinion, or on the strength of some floating mythi? Many of them were men of the highest learning and attainments; and so recent were the declared events on which they grounded their firm and unalterable belief, that they had every opportunity of examining into their credibility. It is incredible, then, it is preposterous, to suppose they would thus steadfastly endure unto the end, amidst shame and persecution, torture and

emotions—has been begotten by a *mistake*—is the result, not of facts, but of the exaggeration of facts, by a generation of ardent enthusiasts—and that no display of God by means of His unquestioned works, by the objects, laws, and processes of nature, has been half so successful in lifting the soul God-ward, and attaching it to the true, the righteous, the good, the infinite, as one marvelous story woven by human imagination, in which the facts are few, and the embellishments of them make up its main purpose and purport.”—*Miall's "Bases of Belief,"* pp. 62, 63.

death, unless they had possessed most substantial evidence that the history of the life, death, and miracles of Him whom they called their Saviour was no cunningly-devised fable,—evidence, too, supported by that corroborative testimony, the “seal of the Spirit,” that the Gospel, the religion of Jesus, had really wrought in them the change it professed itself capable of effecting.

527. Nor are we without substantial outward evidence, in addition to this inferential deduction, that they had the historical testimony of *written records*—however Straussian or Hegelian writers may endeavour to prove that these were not extant till a succeeding age. “Versions [of the Gospels and Epistles] were made into the different languages of the nations converted to Christianity soon after St John, at Patmos, completed the Canon of Holy Scripture, in the Apocalypse, about A. D. 96. Thus the old *Syriac* version or PESHITO, *i. e.* ‘right,’ ‘exact,’ was made, if not in the first century, certainly in the beginning of the second: and now constitutes one of the most precious legacies of the early Christian Church. A translation of the whole Scriptures was made into Latin about the beginning of the second century, which stood preëminent, for its clearness and fidelity, amid the numerous versions which were made at that time, as St Augustine testifies, into that language. This was called the ‘ITALA,’ or *old Italic* version.”* Tatian, a Syrian, too, in the second century, composed a harmony, entitled “Diatessaron,” of the four Gospels, thus making it manifest that they had been previously in circulation. Clement of Alexandria, in the same century, specifically mentions those four Gospels in the very order in which they are now arranged; and makes frequent quotations from the Acts of the Apostles as written by St Luke. Irenæus, Bishop of Lyons, about the same period, mentions all these Gospels, and enters largely into their distinct peculiarities. An unknown writer, who evidently flourished in the early part of the same century, and whose Canon is preserved by Mura-

* The “Canon of Holy Scripture,” by the Rev. M. H. Henderson, of Newark, New Jersey. See, also, Horne’s “Introduction,” and Tregelles on the “Historic Evidence of the Authorship and Transmission of the New Testament.”

tori, gives a list of the collected books of the New Testament nearly according with ours.* Tertullian, in the same century, also quotes those books. Origen, likewise, in the third century, makes large quotations from most of the books now received as canonical; citing in his writings fully two-thirds of the New Testament;† and *by quotations from these Scriptures*, enforced the duty of submitting to martyrdom, rather than by any subterfuge (such as was suggested by the Roman Governors to the Bishops of Ephesus and Smyrna) even *seem* to break their allegiance to Christ the Lord. ‡

528. Nor must the fact be lost sight of, that these writers, in various parts of the world, living, too, contemporaneously with many who had been the recipients of Apostolic teaching, speak of these four Gospels as books universally known among Christians, and commonly read in the Churches.

529. And yet another important testimony, long lost sight of, has been given to the present age. Hippolytus, in his Treatise on Heresies, (so lately brought under our notice by the Chevalier Bünsen,) has not only quoted Simon Magus's references to St Paul's Epistles, but also a reference to St John's Gospel made in the Authoritative Books of the Simonians, which was certainly written within twenty years of that Apostle's death. Further, in his references to the Ovites, he shows clearly that they were acquainted with the language of the Gospels of Matthew, Luke, and John: and in his references to the Basilides he makes it manifest, by what was written at the *beginning* of the second century, that Basilinus was acquainted with the same Gospels.§ Here, then, we have multitudes of independent witnesses, the last of whom has only latterly given his evidence to the modern world, all testifying to an indisputable fact—the *authorship and early publication of these Evangelical Histories*; and what now can be needed to establish their authority? ||

* Tregelles on the "Historic Evidence of the Authorship and Transmission of the Books of the New Testament," p. 15.

† *Ibid.* p. 16.

‡ See Lardner's "Credibility of the Gospel History," *passim*; and the "Restoration of Belief," by Isaac Taylor, Part I. (*Macmillan, Cambridge, 1852.*)

§ See Bünsen's "Hippolytus."

|| There is a fact connected with the "Acts of the Apostles" which clearly

530. Well might we conceive that such evidence is abundantly sufficient. Yet God, in His wisdom and goodness, has provided more; guiding His chosen witnesses into such a natural use of language as makes the very Gospels themselves evidences of their own early publication. One simple fact, elaborated by Dr Dobbin, in his "*Tentamen Anti-Straussianum*," is really conclusive on the point that they are *not* a collection of floating mythi, which have been reduced to writing long after the events of which they profess to give a narrative.

531. Dr Strauss allows the evidence to be sufficient that some of the Pauline Epistles were written within thirty years of the period assigned for the death of our Lord. His English apologist, Harwood, too, speaks of the Epistles as the "primitive" foundation of Christianity, an "*earlier and trustworthier source*" than the Evangelical records. Both seem to forget that St Paul, whom they represent as not basing his scheme of religion upon miracles, speaks of the "signs and wonders" wrought by himself, as well as by the other Apostles, and insists most strongly upon the greatest of all the miracles—the resurrection and ascension of our Lord. This very Paul, too, is a witness for the early publication of the Gospels, for in writing to Timothy, he quotes, *as Scripture*, a sentence found only in St Luke x. 7—"The labourer is worthy of his reward." But these things by the way. Dr Strauss allows that "it would be of most decisive importance for the credibility of the Bible history, if it could be proved that it was written by eye-witnesses, or even by near neighbours in point of time, to the occurrences recounted: for, although mistakes, and consequently false narrations, may find room even in the case of eyewitnesses, yet the possibility of unintentional error—(besides intentional imposture is easily detected)—is confined within much narrower limits than when the narrator is removed from

evidences the early date at which *it* was written. That book is an unfinished drama—a tale without its *denouement*. Right on from the beginning it points to the trial and death of Paul as its climax, and yet ends without it. This may be pronounced a literary impossibility, had it not been penned and finished before that death and trial took place.

the events by a longer interval, and compelled to draw his accounts from the oral reports of others.”*

532. The English apologist of the German Mythogogue intimates, that the date of the Gospels is somewhere past the middle of the second century, or at least that we cannot certainly trace them to a higher antiquity, “because there are not to be met with, of an earlier date, clear quotations from written Gospels which we can *certainly identify* with the Gospels in our Canon:”† the idea intended to be conveyed evidently being, that the Pauline and other Epistles are the earliest Christian books: and that the Gospels are the mere gathering together of floating mythi into books to which the names of persons not their authors were attached.

533. I take my stand, then, on what these Theorists admit. If it can be proved, on unexceptionable evidence, that the Gospels are of decidedly earlier date than the earliest of these Epistles, and that they were, therefore, in the words of Dr Strauss, “written by eyewitnesses, or near neighbours in point of time, to the occurrences recounted,” the mythic theory falls to the ground. And this, the one fact brought out so elaborately by Dr Dobbin very clearly substantiates. I give it in the briefest form compatible with perspicuity. Those who desire more can go to the book itself.

534. The progress of language, and especially of nomenclature, is uniform and unvarying. The one simple appellative which is given to a man in childhood, is the first by which he is known; and, as the most familiar one, is retained longest by his most intimate associates. A surname given as an official designation would necessarily not come into use until a later period. A name connected with some capacity or office to which the circumstances of death were required to add their accrediting testimony, would necessarily come later into use. Viewed, then, in the light of this simple fact, we find the Gospels to be necessarily of a date considerably anterior to that of the earliest Pauline Epistles. In the former, the

* Strauss, section xiii.

† I have already given evidence that this is *not true*; and even if it were true the inference is not a valid one, since the translation of a work is as clear evidence of its existence as a quotation from it.

name by which our Saviour is usually called is simply the Hebrew name "Jesus"—"the Christ" (ὁ Χριστός) being only occasionally used as an addition, to indicate the office to which the sacred writers believed Him to be called. This early designation, in the words of Dr Dobbin, "savours of the familiarity of those who had been about the person of the Man of Nazareth, and had lain in His bosom, and who dotted down their reminiscences of Him while their association with Him was yet a recent thing; while their human Friend and Master was still all but a bodily presence in their common haunts; while they could almost fancy Him wending along the shore as they mended their nets, or walking along the surface as they ploughed the waters of the lake, or speaking to them about the lilies as they sat upon the mountain-side, or presiding at their board as they partook of their evening meal." At the time the Gospels were written, "Christ was still more of the remembered and regretted Friend than the 'Lord of glory.' He had not yet assumed all His divineness *in the habits of their thoughts and speech*, although to every special challenge on the point they gave a prompt confession that 'Jesus was the Christ the Son of the Living God.' He was Divine to their judgment; but did not yet, as such, fill the imagination and the heart. It was a wrong to their *Friend's* memory, to bid them forget the Man, and spoliation of a cherished treasure, and they resisted the wrong. It would be a work of time to make them acquiesce."

535. The Acts of the Apostles exhibit a similar nomenclature, although that book shows some progress towards a later one, the addition of "Christ" to "Jesus" being much more frequent. The Epistles, however, show a great advance, in this respect, of the "habit" of thought and language. In them, the term "Jesus" is scarcely ever used without being accompanied by "Christ;" the "Son of Man" is named as the "Son of God," "the Lord;" and instead of "*The Christ*," (ὁ Χριστός,) we have the name "Christ," without the article, generally made use of as the recognized appellative of the Redeemer.* Such a *complete change*, then, *in language*, must

* Dobbin's pages of citation from the Greek Testament are especially valuable, as clearly exhibiting this change of nomenclature.

necessarily evidence a *progress in time*. And as a number of Paul's Epistles (which are all remarkable for this peculiar phraseology) were evidently written, and widely circulated, before the Second Epistle of Peter was penned, the author of which was himself advanced in life at the time of our Lord's ministry; and as there must have been sufficient time between the writing of the Gospels and that of the Pauline and Peterine Epistles, to produce that change in the habit of thought and feeling which induced the change of nomenclature, (an absorption, in fact, of intimacy and friendship in the sublimer feelings of reverence and adoration,) *a very early date after our Lord's death must necessarily be assigned for the writing of the Gospel records.**

536. As then, on Dr Strauss's own showing, "it would be of most decisive importance for the credibility of the Bible history, if it could be *proved* that it was written by eye-witnesses, or even by near neighbours in point of time, to the occurrences recounted;" and as this *is proved*, as regards the historic records of the New Testament, by the very language the historians make use of, we may rationally conclude, upon this evidence, independently of all that has been previously adduced, that the mythic theory is a baseless dream.†

537. More tenable at first sight is the ground which is occupied by another class of Rationalists. They do not deny the reality of those occurrences which have been long deemed supernatural, but receiving the evidence of their actuality as

* I would not go so far as Dr Dobbin, and contend that all the Gospels entire, and in their *present state*, were published quite so early. The prefaces of Matthew and Mark, where, and where *only*, (with *one* exception,) the words "Jesus Christ" occur, appear to have been an after-edition, as prefaces *usually* are *now*; though probably written before *any* of the Epistles.—See Davidson on the New Testament; and Westcott's "Elements of the Gospel Harmony."

† In the Gospels, the name "Jesus," unaccompanied by "Christ," occurs nearly seven hundred times, while in the Epistles it *thus* occurs less than seventy times, although the mention of the Lord by other names is frequent. In the Gospels the preponderance of the use of the term "Jesus" over Christ is fourteen to one. In the Epistles, that of the term "Christ" over Jesus is ten to one. All the early Christian writers, too, after the death of the Apostles, follow the nomenclature of the Epistles, or rather depart even more from that of the Gospels.

by no means insufficient, attempt to account for them without the intervention of supernatural agency. Here, however, as in the other case, difficulties meet us at the outset. The exertion of supernatural agency is a fact insisted upon by the narrators of the different events: nay, it forms the foundation on which the whole superstructure of Christianity is built. Those narrators must themselves have been cognizant or not cognizant of the fact whether such agency was or was not exerted. If they were not cognizant of it, they either were fanatics or madmen. If they were, and laid claim to that which they were conscious of not possessing, they could only be hypocrites and impostors. What, then, is the value of a Christianity built upon either of these foundations?—the only Christianity which the Rationalist and Spiritualist can acknowledge!

538. It is the usual practice of the class of Anti-Supernaturalists whose objections are now under consideration, to avoid all the difficulties of details, and shelter themselves under general assertions; insinuating, occasionally, an excuse, that the marvels might readily be accounted for if all the details were before them. In some instances, however, our continental neighbours have supplied us with puerile attempts at the solution of Old and New Testament miracles, by means of natural causes; and Mr Atkinson, following in their wake, cites of the use of mesmeric signs and passes by our Lord, as in the instance where He made clay with His spittle, and rubbed it on the eyelids of the blind. But, to refer only to the few miracles adduced in our sixteenth Chapter, by what mesmeric or other natural power were such “marvels” as are there alluded to produced? Could any natural cause divide the waters of the sea, and make them stand up as a wall on either side, so that the ransomed of the Lord might pass over dry-shod? or could any mesmeric influence lull thousands into the belief that they *had* passed over; and that, whereas, when they went to sleep they were on the Egyptian side of the sea, encompassed with difficulties and pursued by implacable enemies, they were now in safety landed on the Arabian shore? Could mesmeric passes satisfy the hungry, year after year, with food, in a desert which produced none; or draw a stream of water out of the flinty rock, sufficient to quench the thirst and satisfy

the ever-returning wants of a fainting multitude? We have heard of its pretensions to effect the cure of diseases,—such, however, as are of a nervous character only,—but can it raise the dead? We have heard of its pretensions to stay the pangs of hunger by inducing a refreshing sleep; but can it make a physical alteration in the principles of things; and, after persuading hungry thousands that they had eaten and were filled, show baskets full of fragments as the remains of their collation?

539. The miracles of Scripture, as though providentially adapted to repel every objection that in after-ages would arise, while, generally, evidences of God's benignity, of His hatred of sin, yet compassion for the sinner, are far removed, on the one hand, from the doubtful marvels which a sifting of evidence might dissipate, or natural causes might account for; and as far removed, on the other hand, from those physical impossibilities which no amount of evidence could substantiate. Other systems of religion, based really on fable, myth, and allegory, have fallen before the power of investigation. Advancing Science drives her chariot over them, and leaves them, in its track misshapen monuments of human folly. But Science sheds a lustre on *our* faith, while it destroys all others: and thus the Christian system stands upon a vantage-ground which truth alone could give it. While the myths of all other nations abound in puerilities, and statements of impossible occurrences, the Scripture records, though penned by unscientific men, contain no physical impossibilities, such as the moon's passing through Mahomet's sleeve; but simply statements of what God has done, in every instance worthy of a God.* Strange, then, must be the infatuation that rejects them because they narrate exertions of superhuman power, when all creation, past and present, testifies that such a power has sometime been exerted!

540. A cursory glance at the nature and peculiarities of a

* If the miracle of Joshua be urged against me, I reply, that it was not impossible for God, who first gave it impulse, to suspend, for a time, the rotatory motion of the earth. Nor was it impossible for Him to alter, for a time, the refracting power of the atmosphere, and thus delay the light—which may probably be the meaning of the text, rather than the stoppage of the body of the sun and moon.

few of the Scripture prophecies, will make it equally evident that *they* are not the result of clairvoyance, or of any exercise of the principles of "vital magnetism." I choose again for illustration those which were adduced in a preceding Chapter.

541. Supposing Isaiah to have been a clairvoyante, whence did he obtain a clue to the future deeds and character of Cyrus? and how could he learn his name? He neither would be presented with his hand-writing, nor anything that belonged to the unborn conqueror; nor can any known or imagined process of mesmeric illumination account for his foreknowledge of an event so remarkable as the conquest of Babylon by that Persian king. When Jeremiah declared that Jonadab, the son of Rechab, should never want a man to stand before the Lord, no power but that which impelled him to exclaim, "thus saith the Lord," could have enabled him to see that after three thousand years had passed away the sons of Jonadab would be a mighty host. When Ezekiel * denounced destruction upon Tyre, and so literally described the details of its accomplishment, nothing but the power of Him who seeth the end from the beginning could have given him a vision of the besieging army "scraping the dust" from off the ruins of the continental city, to form a highway to that which stood upon the isle. When Moses depicted the future desolation of Palestine he had no clue, save that given him by Omniscience, to discover how a "stranger from a far land," sitting amidst its ruins, should utter such bitter exclamations as those which burst from the lips of the Gallic Infidel. And when the prophets, one after another, breathed out the burdens of the Jewish nation, when they told of the two several destructions of their city and temple, the details of "the siege and the straitness," the utter ruin of their holy place—its very foundations being ploughed up by order of the Roman stoic—their miserable dispersion among all the nations of the earth, and yet their miraculous preservation of a people "distinct and separate," as well as "scattered and peeled"—nothing but Divine prescience could have enabled them to record with the exactness of historic detail, events which were yet *to be*. The clairvoyante even granting his visions to be realities,

* Ezekiel xxvi., xxvii., xxviii.

needs some sort of clue to enable him to pursue the object of his search ; but here was neither clue nor object for a clair-voyante's practice—the object and the detail being such as will accord with Divine Revelation *alone*.

542. No records upon earth exhibit less evidences of the exercise of care on the part of their writers to guard against the future discoveries of imposture than those of Revelation. If not Divinely inspired, those writers would seem, again and again, to have needlessly committed themselves to details which would readily lead to the discovery of their imposture ; and which, for any *apparent* object they had in view, might as well have been omitted. The innumerable clues which they, as it were, profusely offer for the discovery of untruth, if untruth be stated,—in the references to the history of other nations mingled with the details of their own ; in their narration of numerous occurrences during the lifetime of those whom they declare to have witnessed them ; and in their prediction of future events, with a “thus saith the Lord,” testify to their honesty as clearly as the irrefragable nature of their writings testifies that their claim to inspiration was a valid one. Scepticism has examined and reëxamined. It has compared their historic details with those of other nations, and seemed to find discrepancies. But the advance of Science and of Criticism has shown those discrepancies to be only seeming ones ; and Criticism has been compelled to own the *minor* details of the Scriptures to be the most authentic records upon earth. Why, then, should it refuse assent to the *major ones*—the records of God's miraculous dealings with His own creation ?

CHAPTER XXIII.

OBJECTIONS BROUGHT AGAINST THE GREAT DOCTRINES OF REVELATION MET AND OBIATED—MEDIATION AND EXPIATION—VERBAL AND BOOK REVELATION—THE ORIGIN AND EXTINCTION OF EVIL.

543. A REVELATION being proved, it might well be urged that the doctrines it makes known to us must be received on the authority of the propounder; and, though they may be discordant with man's views and feelings, and with everything he discovers in the physical Universe, he must yet receive them with humble and implicit faith.

544. Such arguments as these have been commonly used, and are utterly unanswerable. Yet I believe them to be *as utterly unnecessary*, originating only in the limitation of our knowledge, and destined to be cast away as man's mind becomes expanded and enlarged. Whatever the Sceptic, in the pride of his heart and intellect, may urge, there is no such incongruity between the two Revelations of Deity—the written or verbal, and the material or acted, Word. The advance of the physical and moral Sciences is continually presenting to us new features in which the "family likeness" becomes more and more apparent; testifying, by their very congruity, that both proceeded from the same plastic hand.

545. How often has the remark been made, that redemption, mediation, expiation, are discordant with the whole testimony of the Universe around us. Yet that remark is as false and unfounded as it is vain and futile.

546. There is a plain-spoken proverb much in use among the humbler classes of society, and especially among those in whose hearts the deleterious seeds of Infidelity are germinating, that "every tub must stand upon its own bottom."

547. But this proverb, in the figurative sense in which it is used, is far from being of universal application. A system of mediations is continually exhibited to us through the whole kingdom of nature, whether they be or be not intended to

shadow forth a mightier truth, which Revelation only could make fully known.

548. The young of most creatures, and more especially of man, constantly find such a mediation in the care of the parent—a care excited in the one case by irresistible instincts, and in the other by instinct and reason combined.

549. Physical evils, too, are constantly alleviated or eradicated by some mediatorial process. The bruised or wounded flesh calls into play a latent power of healing, in the dispersion of unhealthy humours, the formation of lymph, and the filling up of the orifice, or the closing of the wound. A broken bone will divert from the ordinary currents of animal life the phosphate of lime which may be necessary for its reparation. An exhalation of noxious gases meets with its mediatorial corrective in the principle of gaseous diffusion, which dilutes the subtle poison, and spreads it over so wide an area as to render it comparatively baneless. When vegetation is parched and withered, the air becomes the mediating agent which conveys to it the refreshing showers. When opposing forces gather, and the “negative” and the “positive” hold a part in their isolation, conduction becomes the mediatorial, the combining power, that mingles them into one. And when a satellite or a planet has deviated widely from its mean orbital path, a counter-attraction becomes the mediator that preserves it under the influence of its *primary*.

550. The very commonest processes of nature are mediatorial. Every muscular exertion, every pulsation of the heart, every breath that is drawn, causes a waste of the bodily frame : when this waste has proceeded to a certain extent, the pangs of hunger inform us that food is necessary to its replenishment, and this food becomes the mediator which stays the otherwise inevitable progress of dissolution.

551. Man, in the exercise of his reasoning powers, is continually following the same mediatorial process. He founds hospitals for the sick, asylums for the orphan, penitentiaries for the repentant. He enacts mediatory laws for the protection of the weak, the repression of violence, and the punishment of the aggressor. He establishes schools, and various educational foundations, for the mediatorial instruction of the young.

Yea, his wants have called forth, and his practice has recognized as honourable, a class of professional advocates to plead the cause of the accused, and stand as mediators between them and the laws they are supposed to have broken.

552. The principle follows us into the minutest details of private life. What is he, who, in the hour of danger, interposes with his strong arm for the protection of the weak, or, with his maturer wisdom, for the rescue of the thoughtless or inexperienced, but a mediator between them and peril? What is she, who, with noiseless step, paces the sick room, where the once stalwart man is laid prostrate with weakness, watching his eyes to catch their language, that the lips may be saved the necessity of speaking—anticipating his every want and desire, smoothing his pillow so softly that his aching head is eased, and his heart is reconciled to affliction by the thought of the loving attention it awakens,—what is she, but a mediatrix between him and the fell disease with which he is grappling? What is that mother, who, with simple and eloquent words, and tears more eloquent, pleads with a sterner father for the hapless boy whose early sins had nearly caused his expulsion from under the paternal roof,—what, but a mediatrix between him and the unknown evils that impended? What is she, who, by uncomplaining sighs and tears, and far more by patient, and, therefore, eloquent and silent endurance, has weaned a degraded and besotted husband from the poison-cup of intoxication, or the maddening influence of the gaming-house, to a love of his own hearth and home, and the society of those who are bone of his bone, and flesh of his flesh,—what is she, but a mediatrix between him and ruin?

553. The doctrine of mediation is no startling theme. It does not clash with any of the phenomena of the Universe around us. It is no discord in nature's voice—no harsh or grating note in her harmonious anthem. Its very congruity, at once with our physical and our moral nature, is sufficient to render it *a priori* probable that we might meet with a further development of it in the higher department of Theology. And when we consider the concurrent fact—a fact self-evident—that man is morally diseased, the ten thousand adaptations which we meet with in every department of the physical Uni-

verse might lead us inevitably to the conclusion, that some such mediatorial influence would be adapted to his *moral* needs. How vain, then, are the objections of the Infidel against the doctrine of mediation, whose actions are observable everywhere around us, as well as forming one of the very foundations of the Christian Revelation.

554. To the doctrine of Expiatory Sacrifice, the objection at first appears more forcible; and yet, in addition to the fact that life is daily sacrificed for the sustentation of life, the belief of a Higher Sacrifice would also seem to be one of man's most unconquerable instincts. Search for him when we will, or where we will, in every age of the world, in every country under heaven, sunk in ignorance and barbarism, or raised to the highest pitch of civilization, that doctrine, more or less developed, still is his companion. He slays the victim as an offering to God; or he punishes himself, morally or physically, as an expiation of his sin. And whence the *universal* prevalence of such an idea? It is idle to speak of it as the result of superstition. Blindness and ignorance can lead to no such *uniformity* of result. If in some *one* dark nation of antiquity, or among some *one* of the races of mankind, such a notion as expiation had been discovered, it might, with sufficient reason, have been assigned to superstition as its originator. If a few of those nations, or races, had seemed strangely to agree in such a doctrine, it might have been accounted a remarkable fact, an illustration of the doctrine of "transmitted instincts;" and would, among Ethnologists, have been considered a powerful evidence of their identity or origin. But the idea is as extensive as the species. Its *universal* prevalence is an irrefragable evidence of one out of two facts. It is either a proof that the doctrine was taught by the common progenitor of mankind, to whom it was in some way supernaturally communicated; or that it was an instinct implanted by the Author of our being, which, like all other instincts, must meet with its appropriate answer.

555. Nor is the doctrine of expiation *fairly* stated by the Infidel, as "*the punishment of the innocent for the crimes of the guilty*," or as "*an offering to appease the wrath of a Deity who delights in the bodily sufferings of His creatures*." As far as

animal sacrifice is concerned, Revelation represents it as only typical; and the sufferings of the victim, an unreasoning creature, whose sufferings are confined to the simple article of death, are no greater than they would have been by death under any other circumstances; while, as regards the great Expiatory Sacrifice to which they pointed, the objector leaves out of the question altogether the great essential fact that it WAS SELF-DEVOTION.

556. Christ CHOSE "to do all that it became us to do before we had fallen, and to suffer all that it became us to suffer after we had fallen; and thus, in both respects, though in no way bound by it, to exhibit a perfect and living example of what the law of God requires from His creatures. Hence, though the Lord did indeed lay upon the guiltless the iniquity of the guilty, He did not substitute one creature for another, denying to the innocent that grace which he conferred upon the wicked. The Victim upon whom the sentence of His displeasure fell was His own Son, the partner of His nature and Deity, who first assumed, by His own spontaneous act, our nature, in order that He might bear the burden to which we had proved unequal."*

557. We have read of Leonidas and his brave three hundred compatriots stopping the ravaging march of the Persians at Thermopylæ, and devoting themselves to the salvation of their country. We have read of the king of the Locrians, who, when his son had broken the laws, the demand of which was that both his eyes should be put out, mitigated the punishment by giving in exchange for one of them an eye of his own; thus enduring, self-devotedly, a part of the suffering allotted to his child. We have read of the queen who sucked the poison from the wound of the king, her consort, though convinced that death would be the consequence of her heroic act. We have read of the Polish servant, who, when pursued by wolves, first gave up his horse to be devoured, then yielded up his own body to the rapacious animals to stay their pursuit, while his master and mistress—the Count and Countess Podotsky—got safely within the walls of the adjacent city. And numerous have been the instances wherein soldiers have caught the death-

* Marsh "On the Evidence and Nature of the Christian Religion."

blows intended for their commanders—not merely risking, but *devoting* their own lives for the salvation of a life which they held to be more important than their own. And is such conduct reprobated by the general mass of mankind? Is it pointed out as an abuse of the instinct of self-preservation, an impropriety, a discordance with the general tenor of experience, and irreconcilable with the facts of the physical Universe? Far from it.

558. If God had purposely designed to prepare man's mind for greeting the self-sacrifice of Jesus with marvelling admiration, we can scarcely perceive how His wisdom, power, and goodness could have been more efficiently exercised than by planting in his heart such an admiration of self-sacrifice, that, in the commonest concerns of private life, the principle is loved and revered; and when it leads one or more individuals to offer themselves as victims, and suffer death, for the sake of others, it is recorded and eulogised by the painter's pencil and the poet's song.

559. And the great, the inimitable Sacrifice of Calvary is not such a scene as Shelley and other caricaturists have painted it—an endurance of super-human sufferings to appease a super-human storm of boiling indignation.* It is an exhibition of the love of a Deity—whose nature and whose name are Love—stooping to the limits of creatureship, and enduring the agonies of death, to reconcile His jarring attributes, in the pardon and restoration of the lapsed and ruined creature; attracting that creature, by such an exhibition of His love, back to the bosom of love from which he had foolishly wandered. “*God so loved the world, that He gave His only begotten Son, that whosoever believeth on Him might not perish, but have everlasting life.*” “*For God sent not His Son into the world to condemn the world, but that the world through Him might live.*” “*Herein is love, not that we loved God, but that God loved us, and gave His Son for a propitiation for our sins.*” “*For scarcely for a righteous man will one die, yet peradventure for a good man some would*

* I acknowledge that such terms as “the *wrath* of God” are to be met with in the New Testament; but the original word does not convey the exact meaning which we attach to “wrath” in the present day. That word is *οργης*, which is defined by Aristotle as “a vehement desire accompanied by grief.”

even dare to die : but God commendeth His love towards us, in that while we were yet sinners Christ died for us."

560. The next difficulty or objection which comes under notice, is the modern one raised by so-called "Spiritualists," such as Francis Newman, Foxton, and Parker, against verbal and Book Revelations. Eschewing as absurd the idea that anything so insignificant as "a book" should contain a Revelation of God's will to mankind, this class of writers has latterly contended that it is either utterly impossible, or contrary to what we might expect from the Deity, that He should make any communication of the kind to His creatures other than by an impression on the mind.

561. To speak of Christianity as *merely* a "Book Revelation," is neither correct nor proper. The Bible, indeed, *is* such a "Book Revelation" to mankind; but that Book contains the history of an *acted* Revelation, extending over a long series of centuries, and consummated in the life of a Man who was in the highest sense a "Revelation of the Invisible:" exhibiting, at once by word and deed, the will of God to man. The life of Jesus of Nazareth (in whom dwelt the fulness of the Godhead bodily) was a *moral* Revelation of Deity, in a form which man could understand and appreciate. Its applicability to answer his implanted instincts, is evidenced by its universal adaptation to humanity, in every stage of social progress, from the rudest to the most polished and intellectual condition. But even if we leave out of sight this culminating point in the Christian system—the Revelation of God in the life of Messiah—and consider it *merely* as a verbal and Book Revelation, the objection of Professor Newman, that a Book Revelation is impossible, may be pronounced as wholly untenable.

562. The anonymous author of that excellent volume, the "Eclipse of Faith," (Henry Rogers,) has fairly met this objection; showing that if a Revelation were made to the mind, as Spiritualists conceive, it might only be latent there, and need a "Book Revelation" to call it out into operation. He has ably contended, also, that there can be no inconsistency in supposing God would make use of the instrument which is man's chief means of progress, as the medium of His commu-

nications with the human race. But I would push the matter much further than this; and unhesitatingly declare the position assumed by these professors of a Sceptical Christianity to be at once unphilosophical and unnatural.

563. If God be a God of infinite power, wisdom, and goodness, it is natural and philosophical to conclude He would deal with His creatures according to the powers and faculties with which He has endowed them—with the irrational *as* irrational, and with the rational *as* rational. The chief distinction between the human and the unreasoning or half-reasoning creature, consists in the faculty of speech, and the power of communicating and recording thought by means of arbitrary signs. To the unreasoning creature God communicates by Revelation to the mind, or that which corresponds therewith—impression upon the organization. By this He guides them in what forms half the business of their life—the knowledge of “what to eat, drink, and avoid.” Man, however, has to attain this knowledge by a different process—by observation, experience, and the exertion of his reasoning powers. In this, and other respects, then, God deals with him as a rational and responsible creature, endowed at once with reason, and that highest creature-gift, the freedom of the will. But to communicate with him, *as a rational creature*, on the subject of Religion, and give him thus a Revelation of His will, He must do it through the medium of those faculties which distinguish him from the brute—through the medium of speech and language—of written or oral teaching; and such a communication must necessarily be *a verbal or Book Revelation*. For even the holy life of Jesus, without His preceptive teaching, would have formed but a very imperfect Revelation of Deity to man.

564. The demand, then, of these modern “Spiritualists,” is none other than that God should degrade mankind; deal with His rational creatures as merely instinctive ones; and rule, and lead, and guide them, by means of impressions upon their organization, or that which is tantamount thereto, by “religious ideas” within, through the medium of the “moral and spiritual senses.”

565. We can only judge analogically of what would be God’s dealings in one case, by a knowledge of what *are* His

dealings in another; and since in the one case He treats His rational creature man (in consequence of his being rational) very differently from the mode in which He deals with instinctive and irrational beings,—and there are means by which He could thus deal with him in the case supposed,—even though there had been no professed Revelation of the kind in the world, it would be unphilosophical and irrational to suppose that He would treat him as a merely instinctive creature, in the higher department of religion—in communicating a knowledge of His will.

566. Moreover, the position of these Spiritualists is in another respect untenable. The mind, it is true, has its religious faculties and instincts, but these, like all other faculties and instincts, must seek and obtain their answer, not from *within*, but from *without* themselves. “Our physical appetites assuredly do not find their material of satisfaction within themselves. Our senses rely for meet occupation and reward upon outward objects. Our intellect does not originate its own conceptions, apart from appropriate external embodiments of truth. We do not draw up our ideas of beauty from the obscure abyss of our own nature. Even the glorious faculty of insight presupposes objectivity as a necessary condition of its exercise.”* And though when religious truth is presented under the guise of a human life, or embodied in human language, it forms what man’s religious instincts or faculties can seize upon as their appropriate answer, yet it is contrary to all analogies to conceive that by those faculties or instincts, of themselves, it could ever have been “developed.”

567. I come, then, to the third doctrinal objection—the mode in which Revelation accounts for the origin and existence of evil.

That evil does exist all men are agreed, although strange and extravagant ideas of its nature and being have often been prevalent in the world. The bare fact, that one of the most difficult problems of philosophy has always been “in what way to reconcile its prevalence with the wisdom and goodness of God,” is of itself a sufficient testimony to the reality of its existence. And the Volume of Revelation gives the only rational

* Miall’s “Bases of Belief,” pp. 94, 95.

account of its origin, in the departure or divergence of the responsible creature from his Creator by disobedience to His mandates—his fall from the state of purity in which he was originally created.

568. Already have I shown, in the tenth Chapter, that the existence of evil is not incompatible with the wisdom and goodness of Deity. It cannot be so, because both exist, although so completely antagonistic to each other; and since both *do* exist, it is manifest that both *can* exist. Yet, all philosophy could do was to point out the compatibility of their existence; and by an analysis of circumstances, in which man had been wont to discern only evil, show that in the concurrent causes which produced the effect he deprecated, wisdom, power, and goodness were still discernible.

569. Thus far, then, Revelation agrees with universal experience; and propounds a truth which all thinking beings must acknowledge—that evil exists, and must, therefore, have had an origin. And what if it teach us something further. What if it lead us backward by no intricate ways to *see* its origin, and forward to a higher and brighter path to contemplate the means of its mitigation and its final overthrow! It was chiefly for this end that Philosophers of old declared a Revelation necessary. It was to solve the enigma consequent upon its existence that they asked for, and anticipated, a voice from heaven. Why, then, should man seek for a ground of objection in the fact that it has answered the purpose for which it was, by the wisdom of the ancient world, so long and ardently desired?

570. And that purpose it has answered—practically and intellectually answered. It has taught us *practically* to endure with patience the many afflictions of this life, in the bright expectation of another and a better yet to come: and it has taught us *intellectually* to contemplate the means by which, and the period at which, evil will become extinct. In the lines of its deep and pure philosophy we are presented with a picture of the manifested God—the King and Governor of all things finite—creating the Universe, creating a moral and responsible creature, in the full consciousness of his inherent defectibility, and with the foreknowledge of his fall; and cre-

ating him, though thus necessarily mutable, with a view to the further manifestation of His own attributes in the great act of Redemption, by which the eradication of evil should be finally accomplished, and the creature be rendered immutably secure. And what though millions of years may have passed over since material things, with the accents of their praise, first broke the solemn stillness of eternity,—since material light first shed its radiance on the darkness of immensity,—we know not but we may yet be in the very vestibule of creation, the prelude-passage to its brighter and more transcendent glories. Commencing with the lowest forms of life, Geology testifies that our earth went on, through incalculable ages, giving sustenance to being after being, of a higher and still higher grade; but that it was only as yesterday the *moral* creature, MAN, first trod upon its surface. What marvel, then, if *he* attain not all at once the final glory of his being! What marvel, if some incipient and inevitable disease, *some moral small-pox of creatureship*, must first be developed and eradicated, ere he attain the full maturity of his spiritual strength! What marvel, if Redemption, as yet unconsummated, be necessary to complete and consummate the work of creation, ere the perfection of the creature can be rendered immutable, and the goodness of the Deity flow free!

CHAPTER XXIV.

DOCTRINAL DIFFICULTIES CONCLUDED—FAITH. RESULTS—ADAPTATION OF CHRISTIANITY TO MAN AND MAN'S WORLD—CONCLUDING HYMN.

571. How beautiful is the patient waiting of Faith! It *grasps* the unseen without seeking to penetrate into its mysteries. It *apprehends* the ineffable without attempting to gaze upon its dazzling radiance, and thus become blinded and be-

wildered. A thousand sources of aberration may present themselves ; but, true as the magnet to the pole, its finger still points to Him whose *love* it has realized ; and whose existence, therefore, it has felt and *known*. Clouds of discouragement may blacken the whole heaven, and no ray of hope may shoot athwart the gloom ; but when wholly unable to indicate the presence of the Great Source of its light, heat, and actinism, it rests, unmoved, in patient abiding ; and, like the index on the dial-plate,

“ Waits till the sun shines out again.”

Storms may gather, and the roaring waves may dash, foam-crested, on the rocks that oppose their progress : but, like the limpet to the sea-washed cliff, it clings only the more closely to the Rock of Ages—the Centre of its trust. Distress and anguish, in some humbling, unromantic guise, may rob its possessor of all adventitious good : cares and anxieties may perplex and overwhelm : but calmly abiding, with tearful yet loving eye, it looks upward to its Lord, acknowledging that He who seeth the end from the beginning doeth all things well ! —How beautiful is the patient waiting of Faith !

Yet it is an objection urged by many, and felt by numbers more, that in the Christian system so much should be made of Faith, and such great consequences should be suspended on the simple act of believing.

572. And what is Faith ? and what is certainty ?

Faith is the belief of a matter respecting which there may be doubts, and connected with which there may be difficulties.

Certainty is the consciousness of a matter respecting which there cannot be a doubt, and to a knowledge of which no difficulty appertains.

573. We have passed, gentle Reader, (if you have carefully followed me,) through a comprehensive course of study, glancing at all the main features of the Universe of physics and of mind. I have given substantial evidences of the being of a God, all-powerful, wise, and good ; and of the truth of the Revelation He has made to man. I have, further, calmly and dispassionately considered all the main difficulties of the Atheist and the Infidel ; and shown them to be futile. And now I

challenge your *Faith*! I do not pretend to have made it *certain* that a Deity exists; or to have *certainly demonstrated* that the Scriptures which we call "Holy" are a Revelation from God, the Creator. All I ask, and all that God asks, is your *belief*, your *Faith*! I have left, it may be, many little difficulties unnoticed; many quibbling objections unanswered. Every one of these has been replied to, directly or inferentially, by others, whose labours have rendered the task unnecessary now. But even if none of them had been noticed, yea, if they were all unanswerable, the evidence I have furnished is sufficient to sweep over such puny barriers just as the advancing tide sweeps over the sandy dams upraised by playful children on a sea-washed shore. It cannot be unreasonable, then, after the evidence laid before you, to demand your credence, your confidence, your *Faith*!

574. How few are the matters respecting which anything like *certainty* can be attained. We are *certain* that we live. We are *certain* there cannot be two hills without an intervening valley. We are *certain* that two and two make four. But self-evident truths are not only small in their number, but circumscribed also in their nature. All the greater and lesser events of our lives, all the springs of our actions, centre not on *certainty*, but on *Faith*.

575. Mathematical demonstration may make a near approach to *certainty*; but more than ninety-nine out of every hundred believe *its* facts, not on having witnessed the demonstration, but on the testimony of others. They receive them upon *Faith*.

576. Man eats and drinks, so far as those are not *instinctive* operations, on the *Faith* that the food will give him nourishment. The workman labours, and the merchant sends forth his goods, not because there is any *certainty* that they will be remunerated, one for his work, the other for his merchandise, but both act upon *Faith*. The trader trusts his customers without any *certainty* that he will receive payment for his goods—he trusts them in *Faith*.

What a picture, then, would the world present, if men were as sceptical, and demanded as much *certainty*, in connection with these things, as they do upon the subject of Religion!

577. And what if religious *Faith and knowledge* have their *difficulties*? So have all other kinds of *Faith and knowledge* of which the mind can conceive. Throughout, and even *beyond*, the Universe, they meet us at every turn. It is difficult to conceive of the creation of material things—the bringing of a Universe out of nothing; or rather, out of the bare potentiality of Deity: yet, “by *Faith* we believe that the worlds were made:” and reason corroborates our Faith, by her testimony that all finite things must sometime have had a beginning.

It is difficult to conceive of a commencement of time, or duration; but by *Faith* we believe that God (*αἰῶνας ἐποίησεν*) constituted the enduring times: and reason corroborates that fact also, by her testimony that whatever grows older must one time have had a beginning.

It is difficult to conceive how life can proceed from a parental source; nay, without the evidence of such things before us, it might well be conceived as impossible; but *Faith* believes it *can* be, though she knows not how—believes it on evidence she cannot controvert.

It is difficult to conceive how a little seed can possibly become a plant, or a majestic tree; and no one would be induced to credit such a thing without the evidence of its continued occurrence; yet *Faith* gives her assent to the fact, notwithstanding the difficulties with which it is surrounded.

It is difficult to imagine how light and heat can be continually radiating from the sun, unless that luminary be an incandescent body; or how, if it be an incandescent body, its light and heat should be continually kept up; yet *Faith* does not refuse to believe in its constant and undiminished radiations because of the difficulties which attend any attempts at explanation.

The very existence of the physical Universe, the reality of the things by which we are surrounded, is encompassed with difficulties long thought insurmountable; yet *Faith* refuses not her credence to the existence of the one and the reality of the other.

What we know of the Universe, what we know of the things by which we are surrounded, we know only through the me-

dium of the senses. Yet the senses *may* deceive mankind, as in abnormal conditions they often *have* done. Nay, the works of the Ideal Philosophers, who ruled the world of mind for more than two thousand years, have made it evident that we cannot be absolutely *certain* things *are* what they *appear*. Seeing is but the effect of an image impressed upon the retina; hearing, the effect of vibrations upon the auditory nerve; feeling, a sensation conveyed to the sensorium by an impression upon the nerves which receive the sense of touch. And as these sensations are not “non egoistic,” but “egoistic,” not without ourselves, but within ourselves,—belonging rather to the *me* than the *not me*,—it is, consequently, only by *Faith* that the Deity would not deceive us, but so formed the senses that in their normal state they shall convey to us correct impressions,—it is only by such *Faith* we can philosophically come to any rational conclusion that the visible Universe, that the material things by which we are surrounded, *are* what they *appear*.

How foolish, then, is it to reject Revealed Religion on account of its difficulties, when difficulties similar, and often greater, appertain to everything that gains our credence: and how irrational the objection, that in the Christian system so much should be made of Faith, when Faith is the mainspring of all our thoughts and actions—the very soul of our mental and our moral life.

578. We proceed yet further. To make the truths of Religion self-evident, would be to deal with man, not as a rational, but as an instinctive being. It would be to annihilate the freedom of his will; and force him to act by what is tantamount to an impression upon the organization. Faith, then, is the *only* way in which a rational creature, *as* a rational creature, can be led to receive the truths which God has revealed, and, acting upon that reception, walk in the way of His commandments.

579. Nor in any respect more valid is the last branch of the objection—“that such great consequence should be suspended upon the simple *act* of believing.” If Faith were only, as some have represented it, the reception of a certain form of doctrine, no such consequences might be expected to attach to it. But the Christian Faith, as I have already intimated in other por-

tions of my Treatise, is something more than this inoperative credence—this dead and unproductive belief. It operates upon the whole creature with transforming power, by the introduction of new thoughts, new feelings, new habits, new motives and desires. Realizing the declaration of the pardon of sin and restoration to the favour of his Maker, and embracing with his warmest affections the astounding and transforming truth, that God, the God from whom he was estranged, is a Being of infinite love, who so loved *him*, as Himself to endure the penalty of transgression, that *he* might live for ever,—the Christian has a Faith beyond the mere credence of certain facts revealed, or the reception of a certain form of doctrine—a Faith which operates upon the life, and capacitates him for fellowship with his God and Saviour, at once in this and in a better world.

580. Preposterous is it, then, to object to Christianity on account of the great consequences which it hangs upon the simple filial act of believing, when the wisdom and goodness of Deity are displayed in making *that* the means of man's restoration to holiness and Him; when it enables man to approach His footstool with humble boldness, with child-like reverence, crying, "Abba, Father;" when it arms him for the victory over "the world, the flesh, and the devil," and fits him for an inheritance hereafter, "incorruptible, undefiled, and that fadeth not away."

581. And now, what are the inferences we may legitimately draw from the premises which, in this whole Treatise, have passed under review? what the grand results we have obtained?

They are: That there is a Being, all-powerful, wise, and good,—“a single conscious Being outside of nature,” of which He is the Author, not the soul,—from whom all else proceeds, and has proceeded:—That this Being exists in a plurality of Modes or Persons, since He is at once absolutely infinite, apprehensible, and communicable; maintaining His own abstract infinitude, yet stooping to create a finite Universe, and upholding that Universe by His renovating and sustaining care:—That at least one race of the moral creatures He has formed is not in its normal condition, but has fallen into a state of ignorance

and sin:—That He who stooped from His infinitude for the creation of things finite, has still further condescended to reveal Himself to the erring and fallen race, consummating that Revelation by taking to Himself the form and nature of the lapsed one, for the fuller manifestation of the perfections of Deity, and the duties of humanity; and, as the crowning act of that marvellous condescension, died an expiatory death for sin, in order that the law of immutable morality may be honoured in the pardon of the sinner:—That a *belief* of this vicarious Sacrifice, as an exhibition of the love of God, so operates upon the mind, as to transform its enmity to love, to turn rebellion into fealty, and reconcile the fallen one to the Being from whom he has unconsciously wandered:—That the present life is but the prelude to another, in which the enigmas of Time shall meet with their solution, and recompenses shall be made:—and that there is reason to expect a coming period of Duration—"the times of the restitution of all things," when Moral Evil shall be cast out of the Universe in which God's wisdom and goodness overflow.

582. And is it *possible* to conceive of there being *no* system in which these results are found concentrated? no moral reflection of the Universe in its unity and completeness, which, grasping at once the detail and the concrete, will, in its vast embrace, encompass all?

583. The laws of matter—the varied aspects of nature—the universal adaptation of all things each to other—the abundant and unceasing provision for the wants of every living creature,—appeal to the intellect with overwhelming force; and tell us, "There is a God." But there is another logic, besides that of the understanding—the logic of the heart and affections. Man feels, and knows, that there is something morally wrong in himself, and in his conduct—that, while everything in the realm of physics is *obedient* to law, he himself is an *out-law*, through the freedom of his will. And is it possible to conceive that there should be no provision for appeal to that errant will, for appeal which will carry sufficient force to bring *it also* into subjection, that, in the realm of morals as well as physics, order may universally reign?

584. The stony records of the earth sufficiently testify to

the exercise of benevolent forethought. Multitudes of little polypes, in past geological eras, were led to gather the contents of impregnated waters, and deposit them in limestone rocks. By processes of heat, deposition, or electricity, metallic veins and metallic ores were stored in the once sub-aqueous soil. The most abundant and luxurious vegetation that the earth has ever known was provided, not for the wants of its then living creatures, but kept unconsumed, covered over, and hermetically sealed, to preserve it safe from the processes of decomposition, that, deep in the bowels of the earth, stores of fuel might be found. Thus provision was made, millions of years beforehand, for the *physical* wants of a creature yet to come. And can we conceive that no such provision, in the "councils of eternity," has been made also for his *moral* wants? that no record, the counterpart of earth's stony tablets, would tell him of the same benevolent provision for his higher spiritual needs—when he feels that he has wandered from the orbit of rectitude, and needs some compensating attraction to restore him to the path of safety?

585. The earth-born worm which weaves for itself a winding-sheet, and, bidding farewell to its present constitution and instincts, enters a chrysalis as its grave,* contains within its body even before its metamorphosis, the lineaments of the butterfly. And man has instincts which indicate an after-state of being, and bid him, for that after-state, prepare. Can it, then, be thought possible that there is no record, which, more clear than his instincts, more plain than the writing which, by dissection of the caterpillar, the microscope discovers, will tell him of the future, and *how* for the future to prepare?

586. Every Pagan system, every Philosophic aspiration, every honest ascent from nature to its Source, presents us with portions of truth, commingled with conceits and errors. But CHRISTIANITY reveals *truth only*, and embraces *all* truth. Its entire adaptation to the wants and necessities, the instincts and desires, of the moral creature to whom it has descended from the bosom of Almighty, Ever-Living LOVE, bespeaks its heavenly origin. Proceeding from the great Author of all

* See Walker's "God Revealed in the Process of Creation," p. 99

things, it recognizes not only the laws of physics, but the laws also of mind and morals. It rests not on a mere isolated portion of the universe of being; but, in its mighty orbit, comprehends the whole. It shows us God as the Creator and Preserver; and shows Him, also, as the Renovator and Restorer. It reveals Him as the Fountain of life and intellect, and the great Consummation of the moral creature's joy. It provides for the great, the felt, the unspeakable WANT of Nature, so constantly expressed in all her travailing pangs. For, more powerful than the *attractions* discovered in *her* peerless and undeviating laws,—attractions molecular and chemical, magnetic and centripetal,—it reveals to our astonished gaze the *attraction of the Cross*,* that controls the errant *will* of the lapsed creature, and brings it into humble, holy, and loving subjection to the will of the great Creator.

587. Thus, then, have we discovered the great truths for which we have been seeking. Philosophy, Science, and Revelation here unite and harmonize; while earth, and air, and ocean, and the wide spangled heavens, declare an EVER-PRESENT, A CREATING, RENOVATING, AND SUSTAINING GOD!

588. O THOU! in whom, and of whom, and by whom, are all things! THOU! whose voice called Nature into being; and whose Parental hand drew *me* from the dark mazes of Infidelity and error, and gently led me to a knowledge of Thyself, beneath a brighter, though not cloudless sky, receive, at the hand of one of Thy redeemed ones, this earnest, though feeble, tribute of his love. In dependence upon Thee was it commenced. In Thy strength has it been continued and completed. He sends it forth upon its mission in dependence upon Thee, in whose hands the weakest instrument becomes effectual, and by whose assistance even babes and sucklings may confound the wisdom of the wise.

Thee all Creation praises, in its testimony to Thy wisdom, Thy goodness, and Thy power.

The suns which blaze amid the dark expanse, to all but Thee

* "And I, if I be lifted up from the earth, will draw all men unto me."—John xii. 22.

unknown, innumerable,—the galaxies that stud the pathways of immensity, and greet our vision with their distant light—praise Thee.

Planets which roll around their central stars, and satellites that urge their mystic course around their primaries, obedient to the Finger which impelled them, and the Power that guides them safely in their motions—praise Thee.

Mountains and valleys, hills, and plains, and woodlands, covered with beauty, and redolent of fragrance, presenting for the wants of Thy creatures the gifts of Thy munificence—praise Thee.

Rocks, chasms, and volcanoes, those signs of depression and upheaval, landmarks of renovation, which Thy wisdom has ordained to keep constantly habitable the surface of the earth—praise Thee.

Fountains and streamlets, bright rivers which run placidly along, and laughing cataracts that leap among the hills, and seas, and oceans, that, ever murmuring on their restless way, breathe forth the full bass of Nature's general song—praise Thee.

Mists, as they rise from the surface of the deep, thick clouds and vapours, that spread softness through the air, and, descending in dews and showers, gladden and fertilize the earth—praise Thee.

The vegetable tribes that sprang forth at Thy call, and rejoicingly live on under Thine ordinance of re-production, feeding on the supplies with which earth and air are laden—praise Thee.

The myriads of creatures that revel unseen, as in an ocean of their own, in every tiny sparkling water-drop,—the insect tribes, which flutter in the sun-beam, or wander on the surface of the earth,—the feathered choristers, that make heaven vocal, and fill the groves with joyous harmony,—the fishes, that glide amid the waters,—and the animated forms which tread earth's firmer bosom, rejoicing in the life and sustenance Thou givest—praise Thee.

These praise Thee for creation, and the bounties of Thy providence, by which their returning needs are constantly supplied. And for these, too, man may praise Thee—man, the

subject of Thy bounties, the creation of Thy hand. But *he* may wake a strain they cannot echo, a strain with which the angels cannot vie—beholding in the beneficent Parent of all creatures, his Brother, God Incarnate—he may sing of the wonders of Redemption, and the deep, the unfathomable mysteries of Love.

O! Thou Eternal, Thou Almighty, and All-Loving One! when, when will Thy lapsed creature awake to a full sense of his obligations unto Thee? when will he lead the anthems of Creation, and strike the key-note to the music of the spheres? Hasten the time! Oh speed it on its way! when the earth shall be filled with the knowledge of Thy glory, when the plague-spot of sin shall be banished from the Universe, and unceasing immortality shall reverberate Thy praise! Amen! Hallelujah!

APPENDIX A.

SPECTRAL ANALYSIS AND THE NEBULAR THEORY.

THE discoveries of Dr W. A. Miller and Mr William Huggins in connection with spectral analysis, and especially the observations made with some of their instruments upon the nebulae, have tended to modify the views which the discoveries made by Lord Rosse's telescope had caused to be generally prevalent, that *all* the nebulae might, if we had telescopes of sufficient power, be resolved into star clusters. By Mr Huggins's observations it is found that some of the nebulae will give no continuous spectrum; and these, he concludes, possess no solid or liquid bodies, but are merely masses of floating gas. A comparison between the results of his observations and those obtained by Lord Rosse's telescope is certainly remarkable as tending in the same direction. Mr Huggins states that half the nebulae which he has found to yield a continuous spectrum have been resolved, and about one-third more are considered as probably resolvable, while of the nebulae which by spectral analysis appear to be gaseous, none, according to Lord Rosse, have been resolved.

Respecting the great nebula in Orion his statements are open to some question. He says—"This object is also gaseous. The spectrum consists of three bright lines. Lord Rosse informs me that '*the bluish green matter of the nebula has not been resolved by his telescope. In some parts, however, he sees a large number of very minute red stars,*' which, though apparently connected with the irresolvable matter, are yet doubtless distinct from it. THESE STARS WOULD BE TOO FAINT TO FURNISH A VISIBLE SPECTRUM."

I take this extract from Mr Huggins's admirable Lecture, delivered at Nottingham during the meeting of the British Association there (1866), and I have put the last sentence in small capitals because it corroborates a suggestion I had previously made in more than one of our periodicals, that the distance of the nebulæ, and the consequent faintness of their light, if they are starry clusters, *might* prevent a proper spectrum being obtained.

Whether any of the nebulæ be really gaseous, as they appear to be by the tests of the spectroscope, and thus may be rather classed with comets than habitable worlds, is a question which has but a very remote bearing either upon natural or revealed Theology. Attempts have however been made to revive, by aid of these supposed discoveries, the self-creative theories of La Place, noticed in the third and eighth chapters of this work. At the British Association Meeting in 1865 the President of the Mathematical and Physical Science section is reported in the *Athenæum* to have said—

“In one curious instance, that of the great nebula in the sword-handle of Orion, telescopic and spectral observations appear to be at variance. The former showed the nebula to be resolvable, partially at least, into a few bright spots; the latter showed a spectrum of only three lines—a criterion of gaseity. The solution of the contradiction is *doubtless* to be found in the suggestion, that the bright spots are not stars, but aggregations of the gaseous fluid. Imagination would lead us to conclude that we have here a cosmic process actually in operation before our eyes, *the birth of a stellar group, the formation perhaps of solar systems, the nebular theory realized in fact.*”

This extract gives a fair specimen of the hurried conclusions which were drawn by numerous men of science whose leanings are adverse to Scripture, from the apparent facts of spectral analysis; and form a strong contrast to the modest deductions of the discoverer himself. I quote it for the purpose of showing that, whatever be the actual results of spectral analysis, *such* assumptions are utterly unfounded.

It has been the frequent experience of amateurs, when experimenting on sunlight with a common prism, that a very dull day will prevent their obtaining a continuous spectrum. The result of their efforts has not been very dissimilar from those described as being obtained from the supposed gaseous nebulæ

by the perfected instruments of Messrs Miller and Huggins—a *few bright lines unconnected with each other*. Bearing in mind then Mr Huggins's statement as to the *very* faint light of the nebulæ, the famous Dumb Bell nebula being described by him as having only a twenty-thousandth part the light of a candle, and bearing in mind too his own remark quoted above, that the stars seen by Lord Rosse in the nebula of Orion would be "too faint to furnish a visible spectrum," we may surely pronounce it *possible* that the inability of observers to obtain a continuous spectrum from some of the nebulæ may be on account of their distance, and the consequent faintness of their light. If this *be* the case the results of their efforts to investigate the composition of those nebulæ are simply *nil*. But let us turn to the other side of the question. Let us suppose that the results of such observations are *real*, and just what they appear to be. Let us suppose that the light from these irresoluble nebulæ is *sufficient* to reveal the nature of the materials from which that light arises, and that the nebulæ in question may safely be pronounced to be "nitrogen, hydrogen, and a substance at present unknown," what is the evidence it gives? Why, we may safely conclude, on the plain evidence of spectral analysis, that we *certainly have not* before our eyes "*the birth of a stellar group*," "*the formation of solar systems*," or "*the nebular theory realized in fact*." From no such nebulæ, resembling enormous comets' tails, did the universe or system, of which our earth forms part, arise, for they do not contain the elements necessary to its existence. They contain only *three* elements, while our earth has at least *sixty-four*. For if the observations be worth anything, and there be metals in those nebulæ, even in a gaseous state, the *bright* lines indicating their presence should appear. And if there be no metals present, it may safely be said that the dream of producing a universe, a stellar group, or even a world, out of such materials, is one of the most baseless visions that ever occupied a philosopher's brain.

More modest than those who hurriedly seize upon his discovery to support a foregone conclusion, Mr Huggins, in the truer spirit of science, simply asks the *question* whether the new facts with which the prism has furnished us are an evidence of the reality of that primordial nebulous matter required by the theories of Herschell and La Place. I think I have given

evidence above that we are *not* warranted in arriving at such a conclusion. And I now will conclude in his sober and eloquent words :—" It would be easy to speculate, but it appears to me that it would not be philosophical to dogmatize at present on a subject of which we know so little. Our views of the universe are undergoing important changes ; let us wait for more facts with minds unfettered by any dogmatic theory, and therefore free to receive the *obvious* teaching, whatever it may be, of new observations. Star differs from star in glory, each nebula and each cluster has its own special features : doubtless in wisdom, and for high and important purposes, the Creator has made them all."*

* Huggins's Lecture at the meeting of the British Association, 1866.

APPENDIX B.

MAN'S ANTIQUITY AND ORIGIN.

THE publication of Sir C. Lyell's "Antiquity of Man," a few months after the last edition of this work appeared, created an exciting controversy which has now subsided. The evidence he adduced for man's high antiquity was all of a very questionable character, and chiefly of the kind which had already been met and shown to be insufficient in the nineteenth chapter of this work—the most apparently reliable evidence being that human remains and remains of human workmanship were to be found, in connection with the bones of extinct animals, in strata *supposed* to have been deposited long anterior to the date assigned to Adam's creation. For a year or two the contest was carried on rather sharply, and the subject was continually kept before the public mind. Flint implements (celts) began however to be discovered in such abundance in the south of France—as a rather natural result of the "*demand*"—that even geologists began to doubt the genuineness of many specimens. At length, at Moulin Quignon, in 1863, a human jaw-bone was found imbedded among the "celts:" and a loud shout of triumph was raised by a number of those who had long desired this "connecting link between human workmanship and human remains." The discovery naturally gathered to the spot many of the leading *savans* both of France and England. They were certainly not unanimous as to what *age* and what race of man the jaw might be supposed to belong, the proverb about doctors disagreeing being well illustrated during the meetings at Abbeville by the different opinions expressed on this subject. An im-

portant lesson however was at length learned by the discovery that the jaw had been placed *in situ* by the workmen who found it, having been taken from a disinterred body which was afterwards produced. That lesson was one of *caution*, and much less has been said about stone implements in our current literature since that time. One important fact, however, has since been abundantly proved—that the “stone age,” for which such high antiquity had been claimed, reached, even in Western Europe, far down into the Christian era. For the incontrovertible evidence gathered from battle-fields and the sites of stormed towns, and from Saxon vocabularies in which stone axes and stone adzes were mentioned as instruments of husbandry, showed that flint implements were used both for war and for labour in our own country in Saxon times, centuries after the Romans brought—during the period of their occupation—their instruments of bronze and iron.

The other principal evidences Sir C. Lyell brings forward for man's high antiquity are the peat mosses of Western Europe ; the Danish kitchen middens ; and pile buildings on the shores of lakes. But even these are closely connected with the theories respecting the stone, bronze, and iron ages ; and the fancies built on all stand or fall together. Thus the age of the Danish dunghills, and of the pile buildings on the borders of the Swiss Lakes, is said to correspond (because of the implements found in them) with the age of the ancient peat, and for the growth of the peat many thousand years are claimed, *chiefly* because in the lower portion are found flint and stone implements, in the middle portion bronze ones, and in the upper portion implements of iron. As, however, we find that sometimes in the same country, and at the same period, all three kinds of implements were used, we need not give so large a period to divide these ages, but must take, as our *only reliable evidence*, the ascertained rate of the growth of peat. In this Sir C. Lyell himself shall be our witness. He cites, in his “Principles of Geology,” the case of Hatfield Moss, in Yorkshire, which, he says, “appears clearly to have been a forest 1800 years ago.” He states too that a considerable portion of the peat in Europe is evidently not more ancient than the age of Julius Cæsar : and quotes from Gerard, the historian of the Valley of the Somme,

a statement that in "the *lowest* tier of that moss was found a boat loaded with bricks."*

That, in the course of earth's changes, both organic and inorganic remains do get into places where we should not expect to find them is indisputable; but one fact related by Dr Mantell should teach us not to be too hasty in the conclusions we draw from these strange occurrences. He tells us that, in 1831, some workmen employed in deepening the river Dove, found, *ten feet below the bed of the river*, a mass of ferruginous conglomerate. Now, had there been discovered embedded in that mass a bronze ring and a portion of a human hand, we should unquestionably have had some learned discussions on such evident proofs of man's high antiquity, for, by the slow action which our "uniformitarians" see everywhere prevailing, it would have taken many thousands of years to bury those remains ten feet beneath the bed of a river. Happily, however, we have been spared all these discussions, for, in this conglomerate, thus lying far beneath a river's bed, there appeared some coins of Edward the First.†

The adhesion given in by Sir C. Lyell to the views of Darwin and Huxley respecting the ape-origin of man, brought those views still further into notice; and much debate was held among "Ethnologists" and "Anthropologists," as to whether man was ever *created*, in the accepted meaning of the term, or born of an ape: and whether in one ape or many originated the different races of man.

In one matter Professor Huxley certainly served the cause of the Scripturists, while he himself rejects the biblical account. On purely scientific grounds he thus contends, in a paper "On the Methods and Results of Ethnology," for the unity of the human race. "The Polygenists . . . have as yet completely failed to adduce satisfactory proof of the specific diversity of mankind." But, "even if the differences between men are specific, they are so small that the assumption of more than one primitive stock for all is altogether superfluous. Surely no one can now be found to assert that any two stocks of mankind differ as much as a chimpanzee and an ourang do; still less that

* See further "The Antiquity of Man, an Examination of Sir C. Lyell's Work," by S. R. Pattison, F.G.S.

† See Archæological Journal, vol. vii.

they are as unlike as either of these is to any New World Simian."

Mr Huxley found his strongest opponent to the ape theory in one of the first naturalists of the age, Professor Owen. He clearly showed to the unprejudiced such a difference between the brains of the highest ape and the lowest of the human race as to require many "missing links" to connect the two together, even if all the other apparent impossibilities which stand in the way of man's being so derived, could be overcome.

Not only, however, in their own coteries, but at every successive meeting of the British Association, these questions have been mooted; and at the last meeting of that body at Nottingham (1866), Mr Reddie read an exhaustive paper "On the Serious Theories of Man's past and present Condition," which was nearly all the Scripturist could desire. In the course of that paper he calmly, yet elaborately, considered the question in all its bearings; and showed that if we were swayed by preponderating evidence instead of fancy we might fairly arrive at three conclusions:—1st, That the human race descended from one primeval pair. 2nd, That man has existed no longer on the earth than a fair interpretation of Scripture chronology will warrant. 3rd, That man first appeared in an elevated condition of intellect and morals, from which he afterwards degenerated.

ANALYTICAL INDEX OF SUBJECTS.

- ABORTED and rudimentary organs, section 267*b*
 Acari, (the,) of Crosse and Weekes, 39, and note
 Adjustment of forces, 77, 80, 89
 Analogy between the written and the acted Revelations, 442, 443, 444, 445, 446
 Animal organization, 149, 150, 151, 152, 153, 154, 155, 156, 157, 162, 163, 164, 177
 Anthropomorphism, 506, 507, 508, 509, 510, 511, 511*a*
 Ant, (the white,) 185
 Anti-supernaturalism, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526
 A priori and a posteriori evidence combined, 309
 Articulata, 152
 Assyrian antiquities, 411, 412, 413, 414, 416
 Astrology, 280, 281, 282, 283
 Atheism, summary of, 301
 Atheist's belief, (the,) 61
 Atheist, confounding finite and infinite, 248, 250, 256
 Atmosphere, (the,) 98, 99, 100, 101, 102, 103, 104

 Beaver, (the,) 186
 Bee, (the,) 182
 Birds' nests, 184

 Cataclysms of past time, 462
 Cell-life, 121, 122, 123, 124, 125, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136
 "Celts," 472*a*, 472*b*, 472*c*
 Centre of the Universe, 73
 Chance, 212
 Chemical elements and combinations, 92, 93, 94, 95, 96
 Christian experience, 332
 Cometary orbits, 83
 Comet of Biela, note to 81
 Concluding hymn, 588
 Consentaneity of Nature and Revelation, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399
 Constituents of organized substances, 111
 Contingences provided for by a system of compensations, 312
 Course of the general argument, 11, 12, 13
 Creation necessary, to have originated the Universe, 15, 18, 29, 30, 31, 34
 Creation necessary, to have originated life, 35, 38, 40, 44, 46, 47, 50, 51, 53, 57, 57*a*, 58, 59, 60
 Creature intelligence, 197, 203, 204, 205
 Deductions of philosophy, 419, 420, 421, 422, 423, 424
 Dental apparatus, 165
 Design, 316
 Development, 225, 226, 227, 228, 229, 230, 236, 237, 238, 239, 240, 241, 242, 243, 264, 265, 267
 Different classes of evidence, 359, 401, 402, 403, 404, 405, 406, 407, 408
 Differences in organisms, 267*a*
 Difficulties connected with the Mosaic history of the Creation, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472
 Difficulties of Genesis, 448, 449, 450, 451, 452
 Distribution of inorganic elements, 114, 115, 116, 117
 Disturbing forces, 87
 Doctrines of Revelation, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441
 Domestic poultry, 190
 Early date of the written New Testament Scriptures, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536.
 Earth, (the,) its position in the Universe, 24
 Earth's strata, 261
 Egyptian antiquities, 410
 Electro-psychology, 372
 Eternity, its nature, 16, 19, 20, 21, 28, 29, 30, 32, 33, 34

ANALYTICAL INDEX OF SUBJECTS.

- Evidences of Revelation, 400, 401, 402, 403, 404, 405, 406, 407, 408
- Evil, 268, 269, 276, 277, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 319, 567, 568, 569, 570
- Evil, Ptolemaic system, 278, 279, 280, 281, 282, 283
- Evil, Zoroastrian System, 270, 271, 272, 273, 274, 275, 276, 277
- Evil, Epicurean Objections, 284, 285, 286
- Evil, not a principle, 276, 286
- Evil, its extinction, 570
- Expiation, 554, 555, 556, 557, 558, 559
- Extinct mammalia, 472*c*, 472*d*
- Faith, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580
- Fortuitous origin of things impossible, 36, 43, 44, 47, 178
- Generation, 56
- God's existence deduced from Eternity and Immensity, 34
- Goodness, 317, 318, 319, 320
- Gravitation, 83, 86
- Human Body, chemical composition of, note to 40
- Human era, (the,) 472*a*
- Human instincts, 198, 199, 200, 327, 328, 329, 330, 331, 351, 355
- Human passions, 201, 202
- Human race, recent origin of, 469
- Human race, unity of, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492
- Human remains, 472*e*
- Immensity, its nature, 16, 24, 25, 27, 33, 34
- "Inductive Philosophy," 259, 260, 261, 262, 263, 264, 265, 266, 267
- Infinitude, its nature, 16, 20, 21
- Infusoria, 48, 149, 150, 158, 159
- Instinct, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 198, 199, 200
- Internal fusion of the earth, 229, 232, 233, 234
- Intuitive principles, 206, 207
- Isomeric bodies, note to 133
- "Law," as a cause, 244, 245, 246, 247, 249, 250, 252, 254, 255, 256, 257, 258, 259, 266, 313, 314
- Life, its powers and functions, 41, 42, 45, 46, 48
- Light, analogy between physical and mental, 353, 354
- Lost, (the,) recovered, 408, 409, 410, 411, 412, 413, 414, 415, 416
- Matter, not eternal, 29, 30, 31, 32, 33, 310, 311, 470
- Mediation, 545, 546, 547, 548, 549, 550, 551, 552
- Memory, 365, 366
- Mesmerism, 356, 357, 358
- Metaphysical arguments, why unpopular, 14
- Meteorites, 231
- Mind, 323, 324, 325
- Minuteness, 160, 161
- Miracles and prophecies of Scripture supernatural, 537, 538, 539, 540, 541, 542
- Mollusca, 153
- Moon's orbit, variations in, 84
- Morphological resemblances, 267*c*
- Multiple Stars, 88
- Muscular action and apparatus, 168, 169, 170, 171, 172, 173, 174, 175, 176
- Mutual dependence of animal and vegetable kingdoms, 112
- "Natural Selection," 264, 265, 266, 267, 267*a*, 267*b*, 267*c*
- Nature, (as a cause,) 220, 221, 222, 223, 224
- Nature, a great sacrament, 334
- Nature's teachings, 343, 344, 345, 346, 347, 348, 349, 350, 352
- Nebulæ, (the,) 71, 72, 73, 230, 267*c*
- Necessity, 52, 53, 54, 214, 215, 216, 217, 218, 253, 254, 255
- Noachian Deluge, (the,) 497, 498, 499, 500, 501, 502, 503, 504, 505.
- Order of the Universe, 75, 76, 77, 78, 81, 82, 83, 312, 316
- Oxygen, its abundance, note to 93

ANALYTICAL INDEX OF SUBJECTS.

- Pantheism, 305, 315
 Pausi-Theism, 303
 Personality of Deity, 326
 Philosophy, as contradistinguished from physical science, 418
 Planetary orbits, 85
 Planets, (the,) are they inhabited worlds, 53, and note to 53, note to 89
 Plateau's experiment, 229, 235
 Pre-Adamic death, 493, 494, 495, 496
 Precession of the Equinoxes, 472
 Prospective contrivances, 177

 Rabbits and foxes, 187
 Rational principle, (the,) sometimes misled, 209
 Reasoning from insufficient knowledge dangerous, 3
 Regulation of animal fluids, 166
 Resemblance and difference between crystalline and vegetable forms, 118, 119, 120
 Resemblances of organic creatures, 267
 Results of the whole argument, 581, 582, 583, 584, 585, 586, 587
 Revelation, 336, 337, 383, 384
 Revelation, (the Christian,) 384, 385, 386, 387, 388, 389, 390, 391, 392, 393
 Revelation supplementary to nature, 337, 338
 Revelation possible, 339, 340
 Revelation probable, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350
 Revelation necessary, 351, 352, 353, 354, 355
 Revelation, its rejection on doubtful grounds unsafe, 9
 Revelation, a mental telescope to nature, 9
 Rotifer, animalcule, 48, 150

 Schulze's Experiments, note to 123
 Sidereal heavens, (the,) 24, 25, 26, 26a
 Skin, (the,) 167
 Sleep and dreaming, 368, 369
 Something eternal, but what? 250, 251, 252, 253, 254, 255, 256
 Soul's (the) incorporeity, 356, 357, 358, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378
 Soul's (the) immortality, 379, 380, 380a, 381
 Spontaneous production invalid, 123, 124, 125
 Stars, (the,) their testimony to a Creator, 65, 66, 70, 73, 74, 77
 Stars, (the,) distance from each other, 67, 68, 69
 Stars, (the,) number of, note to 67
 Stars, (the,) magnitude of, note to 67
 Summary of argument on Natural Theology, 310 to 332
 Summary of Atheism, 301
 Summary of Pantheism, 305
 Summary of Pausi-Theism, 303
 Summary of Theism, 307
 Summary of Vestiges of Creation, 243
 Summary of Darwin's Origin of Species, 266

 Theory of explosions, note to 106
 Theory of "Law," 244, 245, 256, 247, 249, 250, 252, 254, 255, 256, 257, 258, 259, 266, 313, 314
 Tides, (the,) note to 87
 Toads, longevity of, note to 472
 Truth, its simplicity and immutability, 1
 Truth, its consistency with itself, 2
 Truth, its consistency with God's acts, 4, 5, 6, 7
 Truth, its consistency with God's acts not always apparent, 3, 8
 Types in nature, 260, note to 433

 Unity, 178, 321, 322

 Vegetable organization, 136, 137, 138, 139
 Vegetation, its characteristics, 140, 141, 142, 143, 141, 145, 146, 147, 148
 Verbal and Book Revelation, 560, 561, 562, 563
 Vertebrata, 154
 Vertebrate skeleton, 260, 267c.

 Wasp, (the,) 183
 Water, 105, 106, 107, 108, 109, 110
 Will, (the,) 325, 374, 375

 Yeast plant, (the,) 125

 Zoophyta, 156

INDEX OF AUTHORS QUOTED OR REFERRED TO.

- ABERCROMBIE, 206, 361, 369, 405
 Adams, 80
 Agassiz, note to 260, 473
 Argyle, (Duke of,) note to 1
 Aristophanes, 225
 Aristotle, note to 559
 Atkinson, H. G., 51, 157, 213, 214,
 244, 246, 295, 301, 312, 356, 360,
 364, 366, 369, 513, 514, 520, 538
 Aymard, M., 472*e*

 Bachman, Dr, 477, 480, 491
 Beaumont, Eli de, 233, 263, 267*a*, 459,
 502, 504
 Bell, Sir C., 163, 169, 198, 377
 Blackburn, 412
 Bolingbroke, Lord, 181
 Bond, note to 72
 Botfield, B., note to 472*a*
 Bouchet, 370
 Brodie, Sir B., 327
 Brown, Dr John, 212, 297
 Buckland, Dr, note to 452
 Buffon, 43, note to 59, note to 481,
 note to 499
 Bünsen, Chev., 529
 Butler, Bp., note to 446
 Buyers, 305
 Byron, note to 516

 Carpenter, Dr, note to 46, 127, 136,
 172, 186, 241, 501
 Chalmers, 79, 463, 471, note to 499
 Champollion, note to 410
 Clement, 527
 Cowan, Dr, 361
 Crosse, 122
 Cudworth, 219, 376
 Cumming, Dr, 496, 499
 Cuvier, 237, 238, note to 505

 Dacier, M., note to 427
 Darwin, Charles, 213, 264, 265, 266,
 267, 267*a*, 267*b*, 267*c*

 Daubeny, Professor, note to 116
 Davidson, note to 535
 De Candolle, 501
 De Morgan, 82
 De Sauley, note to 415
 Dick, Dr, 103
 Diemerbroeck, 361
 Dobbin, Dr O., 530, 533, 534, 535
 D'Orbigny, 223, 263, 267*a*, 459
 Drew, Samuel, 219, note to 365
 Dwight, Dr, note to 43

 Edwards, 478
 Ehrenberg, 149, note to 150
 Elliott, Rev. E. B., 503
 Epicurus, 284

 Faber, Rev. G. S., 505
 Faraday, Dr, note to 99, 105
 Farrier, Dr, 361
 Ferguson, 84
 Forbes, Professor, 263, 489
 Forster, Rev. C., note to 415, note to
 458
 Fownes, Dr, 93, note to 115, 128,
 132
 Fox, W. J., 516, 519
 Foxton, note to 427, 516, 560
 Frey, note to 59
 Fullom, note to 73, 142, 191, 502

 Geddes, Dr, 463
 Gray, note to 452
 Gregory, Dr, 356, 357, 358, 367

 Haddock, Dr, 357, note to 358, 369
 Haller, Dr, 361
 Hamilton, Sir W., note to 49
 Hamilton, Dr, (of Mobile,) note to
 92, note to 384, note to 486, 502,
 505
 Harcourt, Vernon, 505
 Harris, Dr John, 42, note to 122, 141
 Harwood, 531

INDEX OF AUTHORS QUOTED OR REFERRED TO.

- Heber, Bishop, 481
Hébert, M., 472^e
Heberden, Dr, 361
Henderson, H. M., 527
Henri, M., note to 410
Herbert, Lord (of Cherbury), 329
Herschell, 73, note to 73, 215
Hinckes, Dr, note to 411
Hippolytus, 529
Hitchcock, Dr, note to 463, 496
Holyoake, G. J., 19, 248, 250, 301
Hopkins, Lieutenant, note to 87
Howe, Dr John, 58
Humboldt, 67, note to 73, 76, 89, 124,
note to 460, 488, 489
Hume, David, 512, 513, 520
Hunt, Robert, 96, note to 103, 138
Huxley, Prof., note to 264, 472^a, 472^c
Irenæus, 527
Johnston, James F. W., 125, note to
365
Kane, Dr, 370
Keith, Dr, 415
Kepler, note to 447
Kidd, Dr, 510
King, Archbishop, 293, 495
King, Dr, note to 460
Kingdon, Dr, 361
Knox, Dr Robert, 473, 474, 475, 477,
483, 484, 492
Laborde, note to 416
La Grange, 75, 87
La Place, 75, 84, 87, 215, 232
Lardner, Dr D., 83, 233, 459, 502
Lardner, N., 527
Lartet, M., 472^e
Layard, Captain, note to 411, note to
416
Leibig, Professor, 45
Lepsius, note to 410
Leverrier, 80, 87
Lewis, 358
Lindley, Dr, note to 164
Linnaeus, 489
Livingstone, Dr, note to 496
Long, 478
Lucretius, 225
Lyell, Sir C., 238, 262, 263
Lyonnet, 168
Maccall, 516
Maclaurin, 78
Mädler, note to 88
Mantell, Dr, note to 48, 149, 156
Marsh, 556
Marshall, 361
Martineau, Harriet, 19, 213, 244, 245,
257, 301, note to 356
Maw, Geo., 265
M'Cosh and Dickie, note to 95
Miall, note to 524, 566
Miller, Hugh, note to 39, note to 154,
237, 238, note to 463, 472^c, 472^d,
note to 499
Milton, 494
Mirabaud, 43, note to 59, note to 81,
213, 214, 215, 220, 222, 295
Mitchell, note to 75, note to 87
Monboddo, Lord, 473
Moore, Dr G., note to 46, 155, 203,
362, 368
Morgagni, Dr, 361
Müller, 242, 492
Muratori, 527
Murray, Dr, note to 103
Murchison, Sir R., 263
Newman, F., 246, 516, 560, 561
Newton, Sir I., 83, 87
Nichol, Professor, 22, note to 24, note
to 67
Nott, Dr, 473
Novalis, 312
O'Halloran, Dr, 361
Origen, 527
Osburn, 410
Owen, Professor, 260, note to 260,
267^c, note to 433
Paley, Archdeacon, 56
Palmer, Elihu, 51, note to 59
Parker, 516, 560
Penn, Granville, 458
Pickering, 489
Pictet, M., 472^e
Plato, note to 424
Playfair, note to 84

INDEX OF AUTHORS QUOTED OR REFERRED TO.

- Powell, Baden, note to 72, 213, 259,
262, 267*a*, 303
Pritchard, Dr, 367, 478, 491
- Rawlinson, Colonel, note to 411
Redford, Dr, 427, note to 486, 505
Reichenbach, Baron, 221, 358
Retzius, 242
Ritchie, A. T., 460, 466, 468
Rogers, Henry, 49, 562
Roulin, M., 238
- Schulze, 123
Sedgwick, 263, 455
Sidonius Apollinaris, 503, 504
Shelley, 52, 213, 559
Shuckford, note to 458
Smee, Alfred, note to 40, 46, 122, note
to 124, 163, 187, 194, 297
Smith, Dr Pye, note to 449, 459, 460,
465
Smythe, note to 476, 481
Socrates, note to 424
Somerville, Mrs, note to 67, 87, 459
Spinoza, 312
Stirling, John, 511, 516
Strauss, 305, 516, 517, 518, 520, 524,
531, 533, 536
Swainson, note to 499
Syme, 516
- Tatian, 527
Taylor, Isaac, 527
Tertullian, 527
Thompson, R. A., 322, 323, 324
Tillotson, Archbishop, 274
Tregelles, 527
Tupper, M. F., 286
- Ure, Dr, note to 92
- Vaughan, Dr, 314, 334, note to 403
Vestiges of Creation, (Author of,) 75,
76, 210, 213, 226, 227, 228, 234,
236, 238, 242, 288, 296, 303
Volney, M., 407
- Walker, note to 433, 585
Warburton, note to 458
Weekes, 122
Westcott, B. F., 535
Whately, Archbishop, 193, 198
Whewell, Dr, note to 53, note to 72,
87, 140, 249
Wiseman, Dr, 416, 481, 487, 505
- Young, Dr, 487
Zoroaster, note to 424

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

- ABNORMAL, contrary to rule, irregular.
- ACARUS, *plural* ACARI, a genus of insects, of which the "smother fly" in gardens and window plants is a familiar example.
- ACOTYLEDONOUS, without cotyledons.
- ADUMBRATION, a faint sketch, a shadow. In false Theology, the word is sometimes used to represent the Universe, not as a machine, the *work* of God, but as a sort of evolution of Himself, or throwing forth of His own shadow.
- ALGÆ, sea-weed.
- ANHYDROUS, destitute of water.
- ANNELIDA, or ANNELIDES, worm-shaped animals, which appear to be divided into little rings, or annular folds.
- ANTHROPOMORPHIC, human-form.
- A PRIORI*, from the former, from the beginning onwards; a mode of reasoning in which the effect is proved by the cause.
- ARACHNIDES, or ARACHNIDA, a class of small animals, including spiders, mites, and scorpions.
- ARCHETYPE, the original of which, or after which, any copy or resemblance is made.
- ASSIMILATION, the state of being brought to a likeness; in animal chemistry, the process of digestion.
- AZOIC, without life.
- BRANCHIA, the gills of a fish.
- BRECCIA, a kind of pudding-stone, composed of small fragments of stone cemented or run together.
- BRONCHIA, the tubes which carry the air into the lungs of an animal.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

CATACLYSM, a deluge; an inundation.

CELLULAR TISSUE, the tissue or substance of which all organic life is first built up, which, though to the unaided eye it usually appears *solid*, is, when examined with the aid of a microscope, found to be full of cavities, or cells, permeable by fluids.

CENTRIFUGAL FORCE, the force by which a body in rotation tends to recede from the centre of motion.

CENTRIPETAL FORCE, the force by which a body is drawn to the centre of motion.

CEPHALOPODA, a class of molluscous animals which have their feet, or organs of locomotion, arranged round the head.

CEREBRUM, the upper and front mass of the brain.

CHEMICAL AFFINITY, the attraction, or liking, which one kind of matter has for another, which causes them to enter into combination; as oxygen and iron to make rust.

CHEMICAL ELEMENTS. There were anciently thought to be but four elements—earth, air, water, and fire. It is now ascertained that these are *none* of them elements; the first three being compounds of other elements; the last merely a transition state of matter which is undergoing a chemical change. The number of the elements at present known is about sixty. They are divided into *gases*, *earths*, and *metals*. The gaseous elements are chiefly represented (in bulk) by oxygen, hydrogen, and nitrogen: the metals are most of them well known: the earths are of two classes—the one, represented by silicon, continues in an earthy condition when united with oxygen; the other, represented by carbon, sulphur, &c., when united with oxygen, takes a gaseous form, and the combinations are called *acids*; as *carbonic acid*, *sulphurous acid*, &c. Carbon and oxygen are, perhaps, the two most important elements of our world; carbon forms the chief bulk of animal and vegetable structures; oxygen (which word means *life-generator*) enters into the composition of almost everything we see, forming a great part of air and water, and also of the crust of the earth, which is nearly all composed of earthy or metallic oxides.

CHIMERA, something absurd, a vain, idle fancy; originally a fabled monster.

COGNITION, knowledge.

COLLAPSE, a shrinking or falling together of the sides of that which is hollow or elastic.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

- COLLATERAL, not direct; sideways, or running parallel; not immediate.
- COLLOCATION, arrangement, orderly placing.
- CONCOMITANT, accompanying, concurrent with.
- CONGERIES, a collection of particles or small bodies into one mass.
- CONGRUITY, agreement; proper relation between things.
- CONIFERA, an order of plants bearing cones, or tops, in which seeds are contained, of which the fir, or pine, is a familiar example.
- CONTEMPORANEITY, existing at the same time.
- COSMICAL, relating to the Cosmos, or orderly arranged Universe.
- COSMOGONY, the science that treats of the origin of the world.
- COSMOS, order, the orderly arranged world or Universe.
- COTYLEDON, the seminal leaf of the plant, or the lobe that nourishes the seed.
- CRYPTOGAMIC, in plants those which have their means of fructification concealed, and have apparently neither flowers nor sexes.
- CRYSTALLINE, having the form of a crystal, bright, pellucid, or transparent.
- CUTICLE, the outer skin, that covers and protects the real skin in which is the delicate sense of feeling.
- DICOTYLEDONOUS, having two cotyledons.
- ECCENTRICITY, deviation from a centre, irregularity.
- ELLIPSE, one of the three conic sections, an oval figure, which may be either nearly circular or greatly elongated.
- Ενεργεια, (*Energia*), some supposed energies of nature, by which things are produced without the aid of a Creator. The English language contains no such meaningless word.
- EPIDERMIS, the cuticle or scarf-skin by which the true nervous skin is covered.
- EPIGLOTTIS, a cartilage which covers the aperture of the windpipe.
- EXODE, a departure; hence the title of the Book of Exodus.
- EXOGENOUS, increasing by successive external additions.
- EXUVIÆ, whatever is put off, shed, or left; the spoils and remains of natural objects deposited in the earth.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

FAUNA, a term used in Geology to designate the animal creation.

FEBRILE, relating to, or partaking of, fever.

FINITE AD INFINITUM, from a beginning onward without end; distinguished from Infinite, which is without beginning as well as without end.

FLORA, a term used in Geology to designate the vegetable creation.

FORTUITOUS, accidental, happening by chance.

FOSSILS, animal or vegetable remains dug out of the earth.

FOSSILIFEROUS, containing fossils.

GALAXY, a splendid assemblage; in Science, long used to designate the Milky Way, which was once considered to engirdle the "Universe," but Astronomy has since taught us that there are many such galaxies.

GLOTTIS, the upper opening of the windpipe.

GRAMINIVOROUS, feeding on grass.

GRANIVOROUS, feeding on grain.

HETEROGENEOUS, contrary, dissimilar, of an opposite nature.

HEXAGONAL, having six sides, or angles.

HIEROGLYPHICS, emblematical or sculpture writing.

HOMOGENEOUS, having the same nature or principles.

HYPERBOLA, one of the three conic sections which deviates much further from a circle than the ellipse. It is described by Geometricians as "formed by cutting a cone by a plane, which is so inclined to the axis that, when produced, it cuts also the opposite cone, or the cone which is the continuation of the former, on the opposite side of the vertex."

HYPOSTASES, distinct substances, self-subsisting. The word hypostasis is used by the Greeks to designate the distinct modes of existence in the Divine Essence. It is usually expressed in English by the term "person," though that word does not convey the exact meaning: hence some prefer the use of the term "*mode*," instead of "*person*," as less liable to dispute.

ICHTHYIC, relating to fishes.

IGNIS FATUUS, a kind of luminous meteor seen in summer nights in marshy places, supposed to consist chiefly of phosphoretted hydrogen gas.

INCANDESCENT, glowing with white heat.

INCORPOREITY, not belonging to a body.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

INFINITESIMAL, an infinitely small, or almost inappreciable, quantity.

INFUSORIA, microscopic insects, or animalcules, found in water.

INHERENT, naturally pertaining to, existing inseparable in, not adventitious.

INTEGUMENT, the skin, or outward covering, anything that covers or envelops.

INTUITIVE, seen at once by the mind, without previous process of induction; perceived immediately, without the intervention of argument or testimony.

IPSIETY, a man's own individuality.

LARYNX, the upper part of the windpipe.

LATENT, hidden, concealed, secret.

LATERALLY, by the side, sideways.

LEGUMINOUS, belonging to, or consisting of, pulse; as, for example, peas or beans.

LOGOS, (*λογος*.) THE WORD. This term was used by Plato prior to the coming of our Lord, as the name of the Second Hypostasis in the Divine Essence. It was also used by St John as the designation of our Lord. That a Greek Philosopher should have found his way to so much of truth is certainly remarkable; but the objection that Christianity was founded upon Platonism is on many accounts utterly absurd.

MANICHEES, the followers of Manes, a Persian Philosopher of the Third Century, who taught that there were two Deities, co-eternal and co-equal—the one good, the other evil.

MESOZOIC, the middle “period” into which the geological epochs exhibiting former life are divided.

METAPHYSICS, the Science which regards the ultimate grounds of being as distinguished from its physical manifestations.

MONAD, that which is strictly one, a simple substance, the simplest form of animal life, or smallest constituent part of bodies; used sometimes also in Metaphysics as a designation of Deity—the all-comprehensive ONE.

MOLECULE, an atom, or minute particle.

MONOCOTYLEDONOUS, having one cotyledon.

NEBULOUS, misty, cloudy, hazy.

NEBULÆ, clusters of stars, not clearly distinguishable.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

NORMAL, strictly according to rule or principle.

NUCLEATED, something having a nucleus within itself.

ORGANIZED, consisting of parts coöperating with each other.

OSTENSIBLE, held forth to view, openly professed.

OUTRE, beyond, out of the common limits, overstrained.

OXYDATION, the act of combining with oxygen, and forming an acid or oxide—thus iron, when oxadized, forms rust—brass forms verdigris; the carbon contained in coal and wood, when oxydized or burnt, forms carbonic acid; hydrogen gas, when oxydized by means of flame, forms water. By oxydation, also, the blood is purified in the lungs of the used-up carbon it has gathered from the various tissues, in its progress through the veins—the carbon, combining with the oxygen, forms carbonic acid, while at the same time this process of minor combustion produces and keeps up the animal heat.

PALÆONTOLOGIST, one who studies the fossil remains of ancient life.

PALÆOZOIC, (from two Greek words, signifying “ancient” and “life,”) the rocks supposed to have been formed when life was *new* upon the earth.

PANTHEISM, a belief that all things are God,—that the Universe is the body of God, or God the Soul of the world.

PARABOLA, the third of the conic sections, formed by the intersection of the cone by a plane parallel to one of its sides.

PARENCHYMA, a spongy and porous substance, the cellular tissue of animals and vegetables.

PAUSI-THEISM, belief in a resting or quiescent Deity.

PERIHELION, *plural* PERIHELIA, the point in the orbit of a planet or comet which is nearest to the sun.

PERIPHERAL, the circumference of a circle or other curvilinear figure.

PERISTALTIC, a motion, which may be best described as opening and then immediately closing, by which the food is propelled through the winding course of the intestines.

PER SE, taken in the abstract, viewed as alone.

PERTURBATION, disturbance, disorder; in Astronomy, the deviation of a body from its proper and regular orbit.

PHANEROGAMIC, having the re-productive organs visible.

PHANTASY, fancy, imagination, phantom.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

- PHARYNX, the back part of the mouth, or upper part of the gullet, frequently called the throat; though that term properly applies to the whole fore-part of the neck, in which are both windpipe and gullet.
- PHOTOSPHERE, the luminous atmosphere which encircles a sun, a sphere or circle of light.
- PHYSICIST, one versed in Physics; a term seldom applied, except to those whose attention is directed *exclusively* to Physics.
- PLANE, a smooth or even surface; in Astronomy, the *level* in which planets move around the sun: thus, to give an example, though there is no assignable reason, *in the nature of things*, why planets should not move in all planes and all directions round their centres of attraction, yet all the planets of the Solar System deviate almost as little from the same plane or level as though they were rolling round a flat board, with the sun, or point of attraction, near its centre.
- PNEUMA, in the original Greek, this term means both "wind" and "spirit;" hence our word "pneumatics" relates to elastic fluids, especially to the atmosphere; but the word *pneuma* in English usually means the intellectual part of man, or the immortal soul.
- PREDATORY, plundering, preying, ravenous.
- PREMONITIONS, previous notice, warning, or intelligence.
- PRIMORDIAL, original, existing from the beginning.
- PROXIMATE, near, next in the series.
- PSYCHE, a word adapted from the Greek to designate the *life*, or animal soul.
- PSYCHOLOGICAL, relating to the soul, or mind, as distinguished from that which is corporeal.
- RADICLE, a little root, that part of the seed of a plant which becomes a root.
- RATIONALISM, an adherence to reason as distinct from Revelation, and in opposition to it; a mode of interpreting Scripture by which it is divested of everything supernatural.
- RETINA, the seat of vision, which is a pulpy or net-like expansion of the optic nerve on the interior surface of the eye.
- ROTIFER, a highly organized infusorial creature, generally called the wheel animalcule.
- SCINTILLATIONS, sparks emitted.

GLOSSARY OF SCIENTIFIC AND UNUSUAL WORDS.

- SPECTRUM, an image, more strictly speaking the optical image of the sun or other luminous body formed on a wall or screen by a beam of light.
- SPHEROID, an oblong or oblate body not quite circular but approaching to it.
- SPONTANEITY, the state of acting or growing of itself, or of its own accord.
- STRATUM, *plural* STRATA, a layer or bed of anything, as of any particular kind of earth.
- SUBSTRATUM, a basis, or foundation
- SUPPURATION, the process by which pus (commonly called matter) is formed in gatherings or tumours.
- SYNOPSIS, a clear abridgment, or collective view, of any subject.
- TELLURIC, belonging to the earth.
- TENTACULA, the feelers of insects or animals, used as instruments of prehension or exploration.
- TERTIARY, the upper strata of rocks beneath the surface of the earth,—the sedimentary rocks below that surface being, in the infancy of geological science, divided into three groups only—primary, secondary, and tertiary.
- THALLOGENS, the simpler forms of vegetable life, derived from "*thallus*," the leafy part of a lichen.
- TRANSCENDENTALISM, the philosophy relating to what lies beyond the bounds of our experience, or does not come within the reach of our senses.
- TRANSMUTED, changed from one nature or substance into another.
- URANOLOGICAL, beyond the earth's atmosphere ; belonging to the heavens.
- VESTIBULE, a porch, hall, or first entrance of a house or building.
- VOLTAIC, relating to or resembling a galvanic pile or battery, invented by Volta.
- ZOOPHYTE, the fourth and last division of animals ; a class which are supposed to partake of the nature both of animals and plants.

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